DOCUMENT RESUME

ED 252 997 EC 171 330

AUTHOR Watson, Douglas, Ed.; And Others
TITLE Vocational Evaluation of Hearing-Impaired Persons: Research and Practice.
INSTITUTION Arkansas State Div. of Rehabilitation Services, Little Rock.; Arkansas Univ., Little Rock. Rehabilitation Research and Training Center on Deafness and Hearing Impairment.
SPONS AGENCY National Inst. of Handicapped Research (ED), Washington, DC.
PUB DATE 83
GRANT G00810-3980-RT-31
NOTE 110p.; Symposium on "Innovative Research and Practice in Evaluation, Adjustment Training and Employment Services for Hearing Impaired Persons" (Little Rock, AR, October 19-21, 1982).
AVAILABLE FROM National Association of the Deaf, 814 Thayer Ave., Silver Spring, MD ($4.95).
PUB TYPE Collected Works - Conference Proceedings (021)

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS Career Counseling; *Deafness; *Hearing Impairments; Multiple Disabilities; Postsecondary Education; *Vocational Evaluation; *Vocational Rehabilitation

ABSTRACT

This monograph, a product of a symposium that examined innovative research and practices in evaluation, adjustment training, and employment services for hearing impaired persons addresses the assessment phase of the vocational rehabilitation process. The editorial introduction provides an overview of how assessment is conducted with deaf individuals at various levels of functioning. The six articles contained in the monograph stress the assessment phase: "Independent and Dependent Characteristics and Service Needs of Deaf People--A Levels Model" (G. Austin); "Psychological Assessment of the Verbal Functioning of Postsecondary Program Applicants--Enhancing Predictive Validity" (R. Falberg); "Commercial Vocational Evaluation Systems and Deaf Persons" (S. Sligar); "Vocational Evaluation of Severely Disabled Hearing-Impaired Rehabilitation Clients" (F. Cheung); "Vocational Evaluation in Technical-Vocational Education" (D. Buchkoski); and "Career Assessment and Advisement of the Technical College Student" (J. DeCaro, A. Areson). A list of participants is included. (JW)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED252997

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☒ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Douglas Watson
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Vocational Evaluation of Hearing-Impaired Persons: Research & Practice

EC171330

Rehabilitation Research & Training Center on Deafness/Hearing Impairment

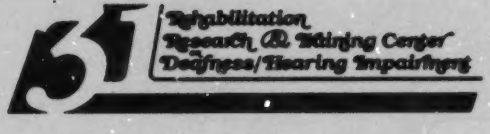
University of Arkansas

Arkansas Rehabilitation Services

VOCATIONAL EVALUATION OF HEARING-IMPAIRED PERSONS: RESEARCH AND PRACTICE

EDITED BY

DOUGLAS WATSON
GLENN ANDERSON
PAULA MARUT
SUE OUELLETTE
NANCY FORD



1983

EC171330

All programs administered by and services provided by the University of Arkansas Rehabilitation Research and Training Center on Deafness and Hearing Impairment are rendered on a nondiscriminatory basis without regard to handicap, race, creed, color, sex, or national origin in compliance with the Rehabilitation Act of 1973 and Title VI of the Civil Rights Act of 1964. All applicants for the program participation and/or services have a right to file complaints and to appeal according to regulations governing this principle.

Table of Contents

		Page
	Contributors	v
	Foreword	vii
	Preface	ix
	Research Utilization & Dissemination	xi
1.	Editorial Introduction	1
2.	Independent and Dependent Characteristics and Service Needs of Deaf People: A Levels Model Gary F. Austin	7
3.	Psychological Assessment of the Verbal Functioning of Postsecondary Program Applicants: Enhancing Predictive Validity Roger M. Falberg	25
4.	Commercial Vocational Evaluation Systems and Deaf Persons Steve Sligar	35
5.	Vocational Evaluation of Severely Disabled Hearing-Impaired Rehabilitation Clients Fung-Ming Cheung	57
6.	Vocational Evaluation in Technical-Vocational Education Dave Buchkoski	69
7.	Career Assessment and Advisement of the Technical College Student James J. DeCaro and Ann H. Areson	77
8.	List of participants	93

CONTRIBUTORS

ANN H. ARESON
Assistant Professor and Director
Special Programs
National Technical Institute
for the Deaf
Rochester Institute of
Technology
Rochester, NY

GARY F. AUSTIN
Professor
Northern Illinois University
DeKalb, IL

DAVE BUCHKOSKI
Vocational Evaluator
St. Paul Technical Vocational Institute
St. Paul, MN

FUNG-MING "MARIA" CHEUNG
Vocational Evaluator
Southwest Center for the Hearing Impaired
San Antonio, TX

JAMES J. DECARO
Associate Professor and Director
Division of Career Opportunities
National Technical Institute for the Deaf
Rochester Institute of Technology
Rochester, NY

ROGER M. FALBERG
Counselor/Consultant
Seattle, WA

STEVE SLIGAR
Director
Southwest Center for the Hearing Impaired
San Antonio, TX

FOREWORD

It was a delight to be a part of this research symposium and to examine innovative research and practices in evaluation, adjustment training, and employment services for hearing-impaired persons. This is an extremely important and timely subject, especially given the perception of this state agency director that deaf people represent the most underserved disability population in vocational rehabilitation today.

The symposium brought together leading research and service personnel who provide leadership in their speciality areas. As such, this symposium assisted in the dissemination and sharing of innovative research and practices and increased collaboration between researchers and practictioners and the new RT-31, Arkansas Research and Training Center on Deafness and Hearing Impairment. It was not deliberate that State Agency people were underrepresented among the outstanding research and service personnel who made presentations at this symposium. This must change. Research dissemination must improve significantly to support in-service training of such State Agency personnel so they may become more involved in research and training and ultimately, more competent in the delivery of rehabilitation services to hearing-impaired persons.

This belief is one important reason Arkansas decided to apply for the Research and Training Center. We honestly feel that there is a serious need and that we have the capability and unique experience needed to enhance services to this disability population. I realize these are my personal perceptions, but we do have a unique organizational structure for service delivery through the Office for the Deaf and Hearing Impaired. We have found the organizational configuration within the Office for the Deaf and Hearing Impaired, consisting of Vocational Rehabilitation, Independent Living Services, and Deaf ACCESS, to be extremely effective not only in increasing the visibility of programs for deaf people, but also in the involvement of deaf people and in the actual delivery of services. For example, for the first three years of the Agency, a committee comprised of six deaf people recommended all policy and interviewed all professional staff. No recommendations have been rejected and no policy has been established or new staff employed without this type of significant involvement. The committee has since expanded to include disciplines recommended in the Model State Plan for Vocational Rehabilitation of Deaf Clients.

We have found the Office for the Deaf and Hearing Impaired staff to be extremely creative, both as a result of the newness of the program and because the deaf community had better insight into needed policies and staff capabilities. We have found the same creativity in the key R & T people, who also were selected with the participation of deaf leaders at the state and national level.

Finally, the outstanding success of RT-13, Arkansas Rehabilitation Research and Training Center for Vocational Rehabilitation, and the leadership of its director, Vernon Glenn, has further enhanced the credibility of Arkansas to deliver this type service.

Now, we must look forward following this symposium to an increased sensitivity of state agencies and other service providers to the needs of deaf people. We must have more timely utilization of research findings to meet these needs. There is no question in my mind that we have a nearly complete act in Public Law 95-602. In this act, no disability is given the priority that deafness is given. This was recently

noted in the Region IV Regional Institute on Deafness by a professional staff member of the Sub-committee on Select Education, Judith Wagner. However, we do need to extend the existing authorities of the act and investigate the possibility of strengthening it through an attempt at funding some of the authorities that have never been funded. An example is interpreting services for deaf persons, Section 315. We must also attempt to provide funding at an increased level for those authorities currently funded.

All of this is extremely important and it will help greatly if we can accomplish these goals, but this can occur only if we are sincere and committed to improvement. A great improvement can be realized if we have that commitment and if we can develop a more effective system for the sharing and dissemination of information between researchers and practictioners. I believe this symposium represents an excellent starting point.

E. Russell Baxter
Commissioner
Arkansas Rehabilitation Services

PREFACE

The University of Arkansas Rehabilitation Research and Training Center on Deafness and Hearing Impairment (RT-31) was established in 1981 to conduct a five year research and training program in three priority areas. These three areas, which comprise the heart of vocational rehabilitation services for deaf persons, especially those who are severely disabled, are: employment, vocational evaluation, and adjustment training services. A primary goal of the Center is to conduct research in these core areas, transpose the knowledge and findings of the research into tangible, utilizable products for rehabilitation professionals, and disseminate the knowledge and findings to the rehabilitation field for application and incorporation in service delivery programs.

Through a comprehensive review of the literature, several innovative research and practice efforts that offer promise for further advancement of knowledge in the three priority areas were identified. Unfortunately, this information was not available and organized in a form suitable for use by deafness rehabilitation practitioners. The need for a research utilization effort between researchers and practitioners in deafness rehabilitation was apparent. In response to this need, an applied research symposium on Innovative Research and Practice in Evaluation, Adjustment Training and Employment Services for Hearing Impaired Persons was sponsored October 19-21, 1982 in Little Rock. The objectives of the symposium were:

1. To bring together in an applied research forum, sixteen leading researchers and fifty practitioners to present papers on innovative efforts that offer promise for further advancement of knowledge and practice in deafness rehabilitation.
2. To review and assess the current state of the art.
3. To develop recommendations and priorities for further research and practice.

Three monographs resulted from the papers presented at the symposium. Each monograph focuses on the conceptual issues, service strategies, current state of the art, and includes recommendations for further research and practice. The monographs should be of interest to researchers, practitioners, program directors, college/university faculty and students, policy decision-makers, and other interested professionals in the area of deafness as well as the field of rehabilitation in general.

The sixteen individuals who presented papers at the symposium deserve special commendation and thanks. Their responsiveness and genuine interest in sharing their work, knowledge, and ideas was impressive. The keen spirit of cooperation and interaction among researchers and practitioners was reflective of the participants desire to advance the field of deafness rehabilitation to greater heights. Without their contributions, it would not have been possible to complete and make the results of this project available to the field.

Grateful appreciation is expressed to Arkansas Rehabilitation Services under the direction of E. Russell Baxter for their support and encouragement. Special acknowledgement is also expressed to the RT-31 staff - Mary O'Rourke, Sandra Pledger, Diane Buford, and Julie Poe - for their assistance in preparation of the manuscripts.

The project was completed with the support of a research and training center grant (G00810 3980 - RT-31) from the National Institute of Handicapped Research and conducted under the joint sponsorship of the University of Arkansas and Arkansas Rehabilitation Services.

RESEARCH UTILIZATION AND DISSEMINATION

The process of communicating and translating the results of research activities into implications for practitioners and facilitating their application within service delivery systems is a continuing challenge in deafness rehabilitation. Dissemination of research reports to targeted user groups does not necessarily ensure that the reports will be read or used by the intended audience. Several obstacles to research utilization identified in the literature are: 1) Lack of an effective linkage system between researchers and practitioners, 2) Lack of involvement of practitioners in the design of research projects and the dissemination of research results, 3) Reporting of research results in formats that do not encourage utilization, and 4) the natural tendency of organizations and individuals to resist change (Bolton, 1979). Though many strategies have been develcped to facilitate research utilization in rehabilitation, two factors are related to those that are most effective, personal contact and involvement of other professionals.

To encourage broad dissemination and utilization of the material included in this document and its two companion publications (Watson, Anderson, Ford, Marut, and Ouellette, 1983, Watson, Anderson, Ouellette, Ford, and Marut, 1983), RT-31 is prepared to assist interested organizations and individuals obtain more information and/or training through several strategies described in the sections that follow.

TRAINERS

The presenters and participants listed at the end of this document were selected from each of the ten RSA regions in the United States, using the following criteria as guidelines:

1. Current involvement in providing rehabilitation evaluation, adjustment training, and/or employment services to hearing-impaired clients.

2. Current involvement in the conduct of research and/or training in one or more of these three service areas.

3. Interest in coordinating and/or conducting in-service training seminars for workshops or other interested professionals within their agency, home community or region.

Through prior agreements, a majority of the individuals listed as participants are available to assist or serve as resource persons in the planning, arrangement, and conduct of in-service training or staff development programs at the request of interested organizations. Interested organizations can either contact the resource persons directly or contact the Director of Training at RT-31.

In addition to this document and its two companion publications, the resource persons will have training guides and overhead transparency masters provided by RT-31 for their use in planning and conducting in-service training programs.

VIDEO-TAPE INTERVIEWS

Ten videotaped interviews with selected presenters, covering specific issues, techniques, and program strategies related to one of the three service areas, are also available for rental or purchase (contact RT-31 for additional information). The videotaped interviews are designed to supplement topics covered in the three conference publications. Material from the videotape interviews have been incorporated into the training guides provided to the resource persons.

CONSULTATION AND ASSISTANCE

RT-31 staff are available for consultation and assistance with the design of training curricula as well as the implementation and evaluation of in-service training related to the utilization of this document and its two companion publications. Additional copies of the three publications can be purchased from either RT-31 or the National Association of the Deaf, 814 Thayer Avenue, Silver Spring, MD 20910.

The strategies described above are intended to facilitate linkage between researchers and practitioners and to enhance communication of the results of the applied research symposium to a broad audience of interested users. It is recognized that additional strategies will also need to be used in order to reach other potential audiences. However, it is hoped that this document and its two companion publications will encourage greater involvement of practitioners in research dissemination and help circumvent obstacles to research utilization.

REFERENCES

Bolton, B. Rehabilitation Counseling Research. Baltimore, MD: University Park Press, 1979.

Watson, D., Anderson, G., Ford, N., Marut, P. and Ouellette, S. Job Placement of Hearing-Impaired Persons: Research and Practice. Little Rock, AR: University of Arkansas Rehabilitation Research and Training Center on Deafness and Hearing Impairment, 1983.

Watson, D., Anderson, G., Ouellette, S., Ford, N. and Marut, P. Adjustment Services for Hearing-Impaired Persons: Research and Practice. Little Rock, AR: University of Arkansas Rehabilitation Research and Training Center on Deafness and Hearing Impairment, 1983.

1 EDITORIAL INTRODUCTION

This publication is the second in a series of three monographs that were generated from the University of Arkansas Rehabilitation Research and Training Center on Deafness and Hearing Impairment's symposium on: Applied Research and Practice in Deafness Rehabilitation Evaluation, Adjustment Training and Employment Services. This monograph addresses the assessment phase of the vocational rehabilitation process. The papers contained in this publication were selected in order to provide the reader with an overview of assessment and how it is conducted with deaf individuals at various levels of functioning from the severely disabled individual to the college level deaf student.

A general definition of assessment adhered to by the authors in this monograph is best described as follows:

> Vocational evaluation is the (1) process of observing behaviors and interpreting them against some criterion; (2) process of assessing what an individual does and how well he/she does it, i.e. his/her "calling" (grounded in interests, abilities, needs, and opportunities) against some criterion; (3) process of obtaining and utilizing information pertinent to an individual to assist him/her in arriving at a vocational objective (VEWAA, 1975 p. 86).

The following sections in this introduction briefly review selected program models found effective in the vocational evaluation of deaf persons, provide highlights of several vocational evaluation approaches currently employed with deaf clients, and conclude with recommendations for future research and practices.

MODEL OF VOCATIONAL EVALUATION OF DEAF PEOPLE

Several papers within this monograph were based on a model of vocational evaluation described by Nadolsky (1971) and modified by Watson (1977) highlighting special program considerations in the evaluation of deaf clients. The pyramid shape of Figure 1 indicates that the goal of evaluation is to determine appropriate vocational outcomes for the client, whether employment or improved adjustment. A logical narrowing of vocational choice occurs as the evaluation process contributes to increased client awareness of his/her actual capacity to participate in the world of work. The base that influences the outcome of each phase of the evaluation process from the collection of biographical data through vocational counseling is anchored to communication. Effective client-evaluator communication comprise the foundation for the delivery of appropriate evaluation services within the context of a social and work environment.

VOCATIONAL EVALUATION AND ASSESSMENT APPROACHES WITH DEAF CLIENTS

The papers contained in this monograph describe evaluation services for three broad categories of deaf clients across a continuum from lower functioning to higher functioning. The lower functioning clients include those who are severely disabled and/or multiply handicapped, and who generally possess limited social, academic and vocational skills. Cheung's paper describes selected assessment techniques and approaches used to evaluate the physical abilities, functional academic skills, job readiness skills, and independent living skills of severely disabled deaf clients.

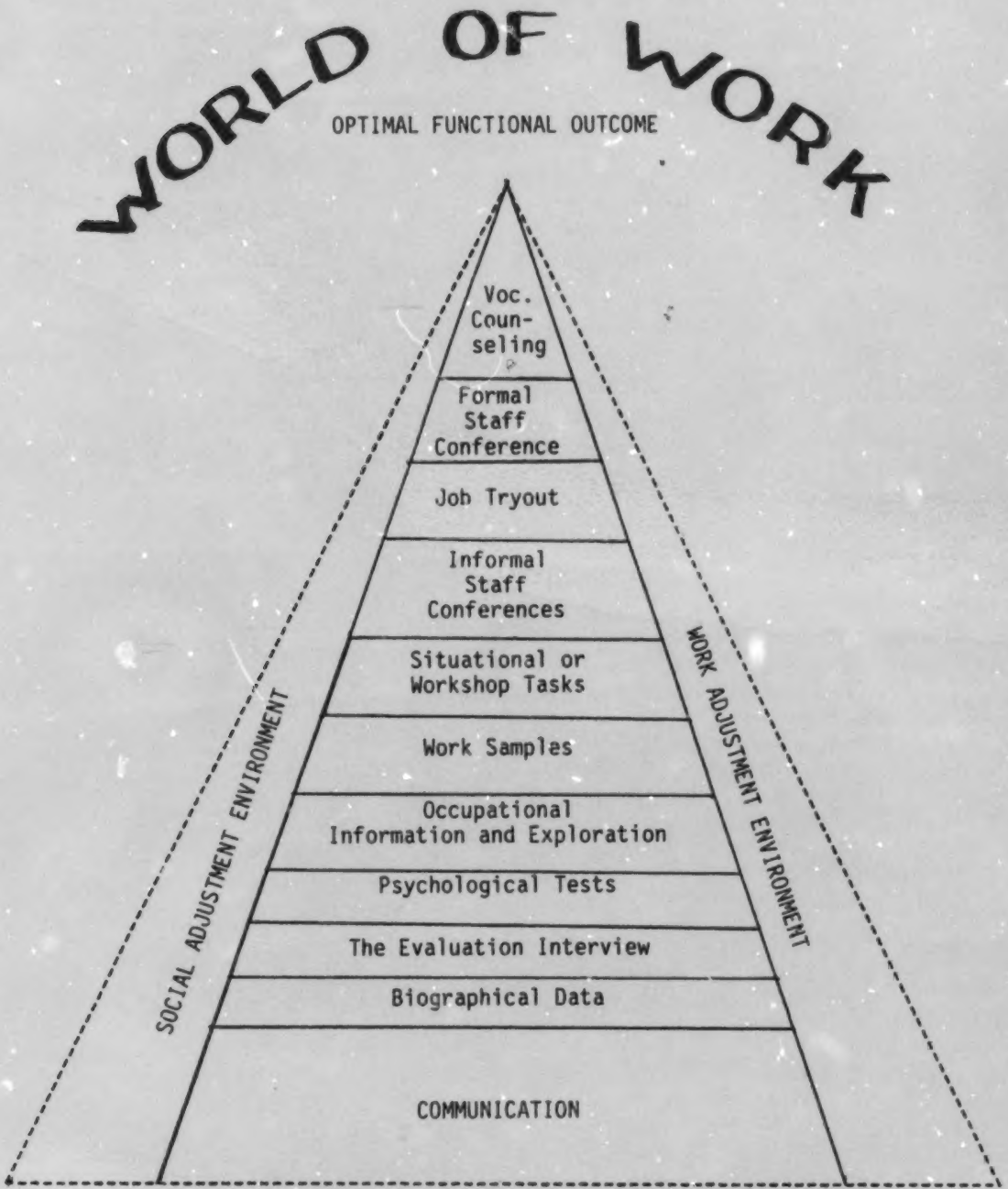
The second broad category of clients includes those in the middle of the continuum. These clients have better social and academic skills and tend to pursue vocational-technical training and seek competitive employment. Buchkoski describes evaluation tools and approaches used in a technical-vocational postsecondary education program for deaf students. The vocational evaluation program that emphasizes the use of "hands-on" work samples is viewed as essential to helping students select an appropriate training area and eventually succeed in employment.

Upon completion of the basic vocational evaluation phase, the evaluator has the option of recommending the client to a vocational training area or using other techniques to obtain additional data on the client's work related behaviors. The growing number of commercial work sample systems available to evaluators represent a significant resource for providing deaf clients with learning situations similar to those in actual jobs or job clusters. Sligar provides a review and assessment of thirteen commercial vocational evaluation systems currently on the market. Each of these systems are applicable with deaf clients, with certain advantages and disadvantages.

The final broad client category includes higher functioning individuals who are likely to pursue some form of postsecondary education in a college or university. These students are likely to receive training that leads to some type of professional career. DeCaro discusses the process of helping deaf students formulate career and work goals based on assessments of their interests, knowledge, and skills within a technical college program. This process, in addition to the use of career advisement (vocational counseling), includes the use of occupational information and exploration tools.

Figure 1

Model for Vocational Evaluation of
Severely Disabled Deaf Persons



Psychometric practices with deaf adults have primarily emphasized the use of those psychometric tests and procedures which minimize the use of verbal instructions and test content. This approach, though valid for many severely disabled persons in the lower functioning category, may be insufficient with those individuals within the higher end of the continuum. Falberg provides a different perspective in the assessment of deaf college or technical school bound individuals. He views the assessment of verbal functioning in an unstructured situation, in addition to other factors, as helpful and predictive of client functioning in a postsecondary education program. Clarifications are made in the use of this approach through his recommendations that verbal instruments not be used to assess current intellectual functioning.

Optimal vocational evaluation services for deaf clients would suggest that all evaluation phases, tools, and procedures evolve within the model of vocational evaluation of deaf clients described in Figure 1. In order for an evaluator to make appropriate recommendations about the individual client service needs, interests, and abilities, it is helpful to also have a framework for describing client functioning and adjustment. Austin's paper outlines a classification system for describing six levels of functioning of deaf clients within the context of four service need categories. The model is based on a continuum of independent and dependent functioning characteristics, and as such, it has usefulness for describing client progress and improvement (or lack of) from one level to another.

RECOMMENDATIONS FOR FUTURE RESEARCH AND PRACTICE

The information presented by the contributors represents a sample of the major issues of concern to the participants rather than an exhaustive list of evaluation practices and research efforts. As such, the recommendations generated by the participants should be viewed as a beginning process directed to encouraging further research and practice in the area of vocational evaluation with deaf people.

Information sharing and dissemination

1. Develop a national directory of programs providing services and resources for the vocational assessment of deaf people.
2. Develop up-to-date guidelines for the vocational evaluation of severely disabled deaf people, outlining effective processes and technigues.

Assessment and Evaluation Tools

1. Identify psychometric test batteries and techniques for the appropriate assessment of deaf children.
2. Conduct further research to refine client classification systems.
3. Conduct further research on the predictive validity of the verbal subtests of the WAIS-R and WISC-R.

Career Assessment and Development

1. Conduct further research to determine what factors influence career choice of deaf individuals.

2. Encourage publication and dissemination of material describing career assessment and career development strategies used by post-secondary programs serving deaf students.

3. Develop conceptual models to describe the career development of deaf people.

Commercial Vocational Evaluation Systems and Work Samples

1. Encourage further collaboration between systems developers and evaluators to develop normative data and standardized procedures for assessment of severely disabled deaf clients using commercial vocational evaluation systems.

2. Research the effective use of agency/evaluator produced work samples based on local employment markets to supplement the use of commercial vocational evaluation systems.

3. Research the relationship of vocational evaluation recommendations to eventual training and employment outcomes for severely disabled deaf clients.

4. Assess which types of commercial vocational evaluation systems are most useful with which types of deaf rehabilitation clients.

Training

1. Conduct needs assessments of the short-term and long-term vocational evaluation training needs of deafness rehabilitation personnel.

2. Develop short and long-term training programs in vocational evaluation of severely disabled deaf people.

REFERENCES

Nadolsky, J.M. Development of a Model for Vocational Evaluation of the Disadvantaged. Auburn, Alabama, 1971.

Vocational Evaluation Project Final Report (SRS Grant No. 12-55958-3-02) Vocational Evaluation and Work Adjustment Bulletin, Special Edition: Vol. 8, July, August, September, 1975.

Watson, D. Deaf Evaluation and Adjustment Feasibility: Guidelines for the Vocational Evaluation of Deaf Clients. Silver Spring, MD: National Association of the Deaf, 1977.

2 INDEPENDENT AND DEPENDENT CHARACTERISTICS AND SERVICE NEEDS OF DEAF PEOPLE: A LEVELS MODEL

GARY F. AUSTIN

The specialty of deafness rehabilitation has rapidly developed during the past fifteen to twenty years. Though no one isolated event signaled this development, we can point to the 1973 Rehabilitation Act, and its later amendments, as a catalyst. Representing the efforts of many deafness rehabilitation personnel, this legislation included deafness as a severe disability and gave greater visability to our profession. Just as legislation is theoretically the will of the people, so too is independence the goal of rehabilitation. Specific to the field of deafness rehabilitation, however, we have had to rely upon definitions of the disability that have either lacked clarity or acceptance by deaf people and professionals. More clearly defined within our professional literature and research, however, are the characteristics and service delivery needs of deaf people. The model presented in this paper is based upon this body of knowledge and the results reported reflect, to some extent, the profession's current state of development.

As an identifiable segment of the human service delivery system, it would seem appropriate that the specialty of deafness rehabilitation define in a systematic way the people we serve and the needs of these individuals. In developing the Levels Model, four basic precepts become the major underlying influences in its direction and shape. An understanding and acceptance of these influences is essential to a fuller understanding and utilization of the model itself.

First, life is dynamic and continually changing. Some things in one's life improve while others seem to deteriorate. Just as major accomplishments are often achieved by an individual, so too can major tragedies or changes redirect one's life. Second, each person is an individual and must be treated with a respect for that individualism if we intervene in their lives. Third, in order to be effective we must approach the individual as a multi-faceted being. Utilizing this wholistic

approach, our efforts should not be concentrated on only one or two isolated characteristics of the person; and, the fourth and final precept, rehabilitation either allows one to maintain their present level of independence or to function at a higher level of independence. The concept of confining the adverse affects of disability and fostering independence at one's highest potential level of function is what makes rehabilitation so unique.

In keeping with these precepts, this model was developed to:

1. Demonstrate that all deaf people are not alike.
2. Assess the level of functioning of deaf people.
3. Assist in providing services to deaf people.
4. Use as a guide in developing service programs meeting the needs of deaf people.
5. Serve as a guide for understanding deafness when professionals communicate.
6. Serve as a teaching aid.

The loss of hearing sensitivity has either been defined or classified in quantitative measurements or in functional terms by other disciplines such as medicine and audiology. These definitions provide only one or two characteristics that may or may not have value in terms of understanding the whole person or their quality of life. **Dorland's Illustrated Medical Dictionary,** 1974, defines deafness as "lacking the sense of hearing or not having the full power of hearing, moderate lack of hearing is often called hearing loss" (p. 409). A common audiological definition presented is that deafness is the traditional term for a severe or complete loss of auditory sensitivity for adults. This definition should only be used if the hearing-threshold level for speech is 93 dB (ISO) or worse for children. The cutoff level is often set as low as 70 dB for educational purposes. These definitions as well as those used in education, psychology, and sociology serve their respective purposes but make difficult a ready understanding of the often invisible and concomitant handicaps of hearing loss. In summary, loss of hearing ability has been reported as and may be defined according to:

1. amount of functional hearing
2. auditory structures
3. degree of hearing loss in the speech range
4. amount of speech and language handicap
5. educational requirements
6. cultural considerations
7. psychological considerations

8. rehabilitation considerations

9. the deaf person

With deafness defined and classified in so many ways, it becomes increasingly difficult to provide and maintain continuity of services with appropriately timed intervention.

The **Levels Model of Independent and Dependent Functioning of Deaf People** was developed by the following method. Literature published during the past ten years was reviewed and yielded a long list of characteristics and service needs of deaf people. To qualify for selection as a characteristic and/or service need to be used in the Model, a characteristic had to be recognized and described by three different references. Material from the past ten years was reviewed as many reports published before that time may lack adequate numbers of subjects or contain reporting information that was dated. Secondly, a wider base of information has been published in more recent years. Intensive study of the resultant list of common characteristics began to produce those that lead to independence as compared to dependence, and service categories that were common in scope but differentiated in need based upon the level of independence demonstrated.

It becomes obvious, that as an individual is described by the characteristics possessed, clusters of commonality begin to develop. These clusters, kept in the perspective that each person is an individual and that various experiences have in some way formed or molded one's life, become levels of functioning. The review of the literature produced three categories of variables that have unique influence upon one's level of dependence or independence (see Table I).

Rehabilitation is a cultural phenomenon as is dependence and independence. Our society, based upon a pervasive work ethic, tends to be vocationally-oriented and most measures of dependence center around one's contribution for their own welfare and the ability to provide for others. This concept served as the basis for the development of six levels of functioning, ranging from dependent institutionalized to independent professional (see Table II). There appears to be agreement that across all levels of functioning a continuum of characteristics and abilities exists. An individual person or group of people may exhibit the same characteristics, to a greater or lesser degree, and these characteristics may intertwine across levels of functioning. No attempt can be made to indicate that people in any one level are of more or less value than another.

The mobility that exists between levels is determined by individual characteristics, services needed, and the availability, as well as the quality and quantity, of those services. Equally important is the provision of services at the appropriate time. Mobility from level to level and enhanced independence within each level is possible for two basic reasons. One, each person's life is, by nature, dynamic and everchanging, and two, rehabilitative intervention can enhance the client's level of independence (see Table III).

Each level of functioning was divided into seven categories for clarification and consistency. These categories are: personal life, vocational life, deaf community contact, family relationships, communication, educational achievement, and additional factors. In addition, each category contains those characteristics originally reported in the literature related to deafness rehabilitation. It is important to

Table 1

Variables of All Levels of Function

Personal Variables

Present Age
Age of Onset or Diagnosis
Etiology
Intellectual Capacity
Age at Time of Education Intervention
Age at Time of Rehabilitation Intervention
Age at Time of Psychological Intervention
Degree of Hearing Loss
Use of Residual Hearing
Additional Disabilities
Sex
Mode of Communication
Personality
Motivation

Social Variables

Socio-Economic Status
Family Background
Family Composition
Religion
Ethnic Group
Geographic Location
Determinants for Success of a Deaf Individual

Intervention Variables (Quality and Quantity)

Parental Involvement
Grandparent Involvement
Type of Educational Intervention
Type of Rehabilitation Intervention

Table II

Levels of Dependent and Independent Functioning

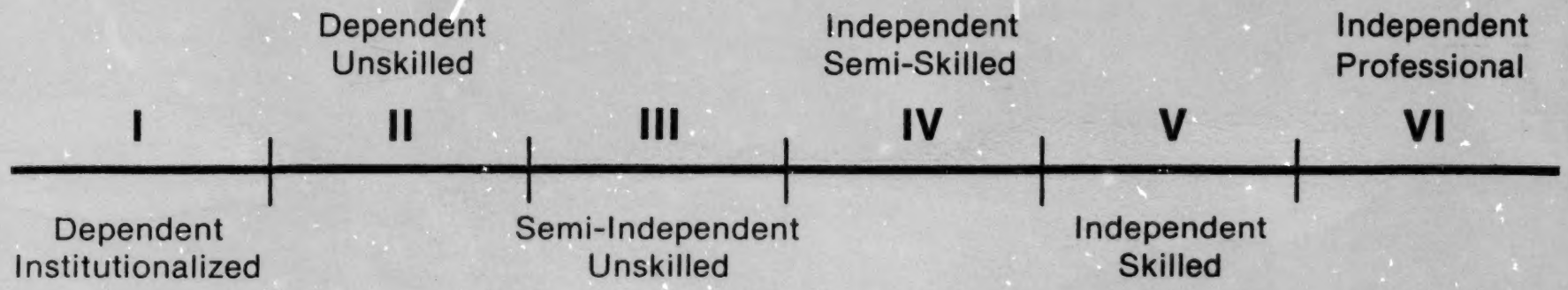
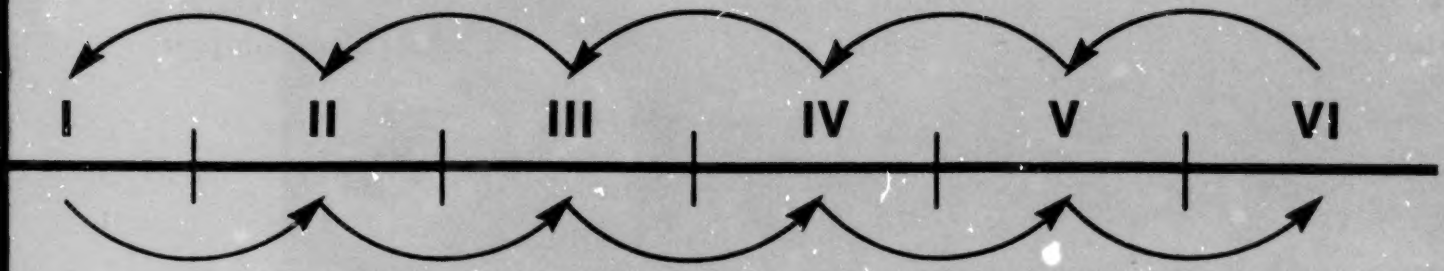


Table III

Mobility



Determinants

1. Individual Characteristics
2. Services Needed
3. Services Available
4. Quality of Service
5. Quantity of Service
6. Timeliness of Intervention

realize that each characteristic may or may not be represented in each individual. Some persons may have individual characteristics one or two levels above or below their predominate level of function.

The service needs of each level were also organized into four categories. These categories are: social services, education, vocation and rehabilitation. The literature representing each level of function may not be fully developed and other characteristics and service needs may exist but may not be directly referred to in the current literature.

LEVEL I

Institutionalized - Unskilled

CATEGORIES

Personal Life

- Mobility limited to institutional grounds
- May be moved to sheltered living with high supervision
- Lacks strategy building skills
- Receives some form of public assistance
- Primitive personality

Vocational Life

- May function in sheltered workshop on grounds
- May not follow simple directions
- May respond to singular commands

Deaf community Contact

- No deaf community contact

Family Relationships

- Custodial care
- Infrequent to no contact with family

Communication

- None to primitive gesture, mime, some ASL and speech

Educational Achievement

- Generally untestable to first grade level

Additional Factors

- High probability of multiple disabilities
- Often poorly diagnosed and evaluated

SERVICE NEEDS

Social Services

A. Family Support System

B. Recreation

C. Social Interaction

D. Mental Health Services
Family, Individual and Group counseling

E. Legal Aid

Education

A. Communication Skills

B. Intense Basic Training in Activities of Daily Living

C. Assessment of Potential and Skills

Vocation

A. Pre-Work Skills

B. Structured Experiences

C. Assessment of Potential and Skills

D. Comprehensive Habilitation Services

Rehabilitation

A. Comprehensive Physical Health Services

Level I Institutionalized-Unskilled represents those persons in institutions for the mentally retarded or developmentally handicapped persons. In some geographic regions, it may also be generally descriptive of those who have been in mental health facilities. With increased emphasis on de-institutionalization this population may be grossly underserved.

LEVEL II

Dependent - Unskilled

CATEGORIES

Personal Life

- Supervision provided by family or guardian
- May lack toilet training skills
- Not presently caring for personal cleanliness, clothing, or financial resources
- Lacks strategy building skills
- Receives or is eligible for public assistance

Emotional Life

- Expects failure
- Reality is here and now

Vocational Life

- Not presently employable
- May follow simple directions or follow hands-on learning
- Very limited decision making skills

Deaf Community Contact

- Very limited deaf community contact

Family Relationships

- Possibly unhealthy family relationships
- Probably regress to Level I without family care

Communication

- A combination of mime, gesture, home sign, ASL, speech and speech reading

Educational Achievement

- Educational Achievement 0 - 2nd grade

Additional Factors

- Possibly multiply disabled
- Possible behavior disorders
- Often poorly diagnosed and evaluated

SERVICE NEEDS

Social Services

A. Foster parents and homes

B. Social and personal adjustment programs

C. Coordination of services (multiply disabled)

D. Counseling
   Parent
   Individual
   Group

Education

A. Communication Skills

B. Intense Basic Education in Activities of Daily Living

C. Assessment of Potential and Skills

Vocation

A. Pre-work skills

B. Structured experiences

C. Sheltered employment opportunities

Vocational Rehabilitation

Comprehensive Physical Health Services

Level II Dependent-Unskilled is characterized by dependence upon family or guardianship to provide daily and long term care. These persons are presently not employable, expect failure as many have primarily only experienced failure. There is great need for appropriate intervention as they will either become institutionalized or imprisoned if left to survive without supervison.

LEVEL III

Semi-Independent - Unskilled

CATEGORIES

Personal life

- Mobility limited to a small geographic area
- Capable of self-care, dressing, cleaning room, personal cleanliness, limited financial knowledge
- Possibly drives
- Lacks confidence and experience in independent living
- Limited decision making and strategy building skills
- May receive or be eligible for public assistance

Vocational Life

- Capable of menial employment
- Often part-time or family connected

Deaf Community Contact

- Possible deaf community contact

Family Relationships

- Supervision provided by family or guardian
- Possible unhealthy family relationships

Communication

- A combination of mime, ASL, speech and speech reading
- Awareness of language

Educational Achievement

- Educational Achievement 1st - 3rd grade

Additional Factors

- Very little professional intervention

SERVICE NEEDS

Social Services

A. Mental health services
   Family, individual, and group counseling
B. Parent family involvement
C. Social and personal adjustment training
D. Support services
E. Recreational activities
F. Legal aid
G. Insurance information
H. Interpreters

Education

A. Continuing education opportunities
B. Independent living skills
C. Communication skills
D. Remedial education
E. Specialized instructional media
F. Family life education

Vocation

A. Vocational evaluation
B. Vocational adjustment training
C. Vocational training
D. Job placement

Comprehensive Physical Health Services

Rehabilitation

A. Comprehensive rehabilitation service facilities
B. Sheltered workshop placement
C. Adaptive vocational rehabilitation procedures and services
   1. More time for evaluation and training
   2. Continuity of services
   3. Client involvement

Level III Semi-Independent-Unskilled refers to persons who are capable of employment and possess personal skills sufficient to allow for considerable potential for personal development. This level appears to have not been successfully influenced by professional intervention and is invisible to most human service delivery systems. The extent of the network of services exemplifies this need.

LEVEL IV

Independent - Semi-Skilled

CATEGORIES

Personal Life

- Private living quarters--apartment, etc.
- May receive Social Security and Social Security disability income
- May cook, do laundry, ride bus, drive
- May marry and have children
- Various levels of decision making skills

Vocational Life

- Basically employable; nontransient labor
- Task oriented
- Varied work record

Deaf Community Contact

- Contact varies due to geographic location

Family Relationships

- Little extended family contact

Communication

- good ASL skills, fundamental English skills

Educational Achievement

- Achievement equal to 2nd - 4th grade

SERVICE NEEDS

Social Services

A. Public assistance information

B. Socialwork services

C. Mental health services and counseling Prevention, Crisis Intervention, In and Out Patient Services

D. Transitional support services in relocation

E. Retirement information

F. Alcoholism treatment

Education

A. financial support in training

B. Educational alternatives; continuing education

C. Communication training

D. Family life education

Vocational

A. Vocational training

B. Vocational placement

C. Vocational mobility

D. Vocational rehabilitation

Community Service Centers

A. Comprehensive information clearing house

B. Legal aid: wills, insurance, inheritance

C. Financial planning information

D. Safety and first aid

E. Recreation

F. Consumer information

G. Interpreters

H. Avocational activities

Level IV Independent-Semi-Skilled persons are capable people generally responsible for their own welfare and care of others. This level is typified by their predominate use of ASL and fundamental English language usage. Employment in factories and service businesses are their predominate places of employment.

LEVEL V

Independent - Skilled

CATEGORIES

Personal Life

- Owns home, car, property savings
- Married, has children

Vocational Life

- Good employment skills
- Highly skilled, clerical, craftsman, private business owner
- Little vocational mobility - horizontally or vertically

Deaf Community Contact

- Deaf community involvement, leadership in local and state clubs

Family Relationships

- Limited extended family contact
- Family continuity

Communication

- Good ASL skills, and usable English language skills
- Some speech and speech reading

Educational Achievement

- Equal to 5th - 8th grade, some college graduates
- Vocational training

Additional Factors

- Political involvement begins

SERVICE NEEDS

Social Services

A. Social security information
B. Avenues to adopt children
C. Daycare facilities
D. Voting information
E. Legal aid
F. Mental Health Services and counseling, prevention, crisis intervention, in and out patient services
G. Retirement information
H. Insurance
I. Alcoholism treatment

Education

A. Post-secondary opportunities
B. Continuing education
C. Financial planning
D. Family life education

Vocation

A. Vocational training
B. Placement opportunities

Community Service Centers

A. Comprehensive information clearing house
B. Legal aid: wills, insurance, inheritance
C. Financial planning information
D. Safety and first aid
E. Recreation
F. Consumer information
G. Interpreters
H. Avocational activities

Level V Independent-Skilled persons are possibly the most known to the general public as they contribute to their community in a way that is visible to their neighbors. Their families often attend community events and they are viewed as successful people despite their disability. These individuals also are leaders among the larger deaf social community and extend themselves to others. This level is often viewed as the most positive result of appropriate educational and rehabilitation efforts.

LEVEL VI

Professional

CATEGORIES

Personal Life

- Owns home, property, investments
- Well established
- Married

Vocational Life

- Excellent employment skills

Deaf Community Contact

- Deaf community leaders and advisors
- Wide range of social friends

- Some international contacts

Family Relationships

- Family continuity with extended family

Communication

- High level of communication in all modes
- More reliance on English language and speech

Educational Achievement

- Has academic skills 10th grade and college graduate

Other Factors

- Participates in the political process
- Often deafened in early or mid-life
- Takes longer to achieve professional status
- Few non-whites
- Very little mobility horizontally or vertically

SERVICE NEEDS

Social Services

A. Legal services

B. Voting information

C. Retirement planning

D. Mental health-counseling, prevention, crisis intervention, in and out patient services

E. Alcoholism treatment

Education

A. Higher education: graduate school; professional schools

B. Continuing education

Vocation

A. Employment adaptation

B. Placement services with horizontal and vocational mobility

C. Leadership training

D. Communications training

E. Public relations

Community Service Centers

A. Comprehensive information clearing house
B. Legal aid: wills, insurance, inheritance
C. Financial planning information
D. Safety and first aid
E. Recreation
F. Consumer information
G. Interpreters
H. Avocational activities

Level VI - Independent-Professional persons represent a minority within the deaf community. In their own right, capable people who to some degree are invisible to the larger public but well known in human services through their activities. The literature does not report upon those who maintain no contact with the deaf community and for whatever reasons chose to live with no or limited contact with other deaf persons.

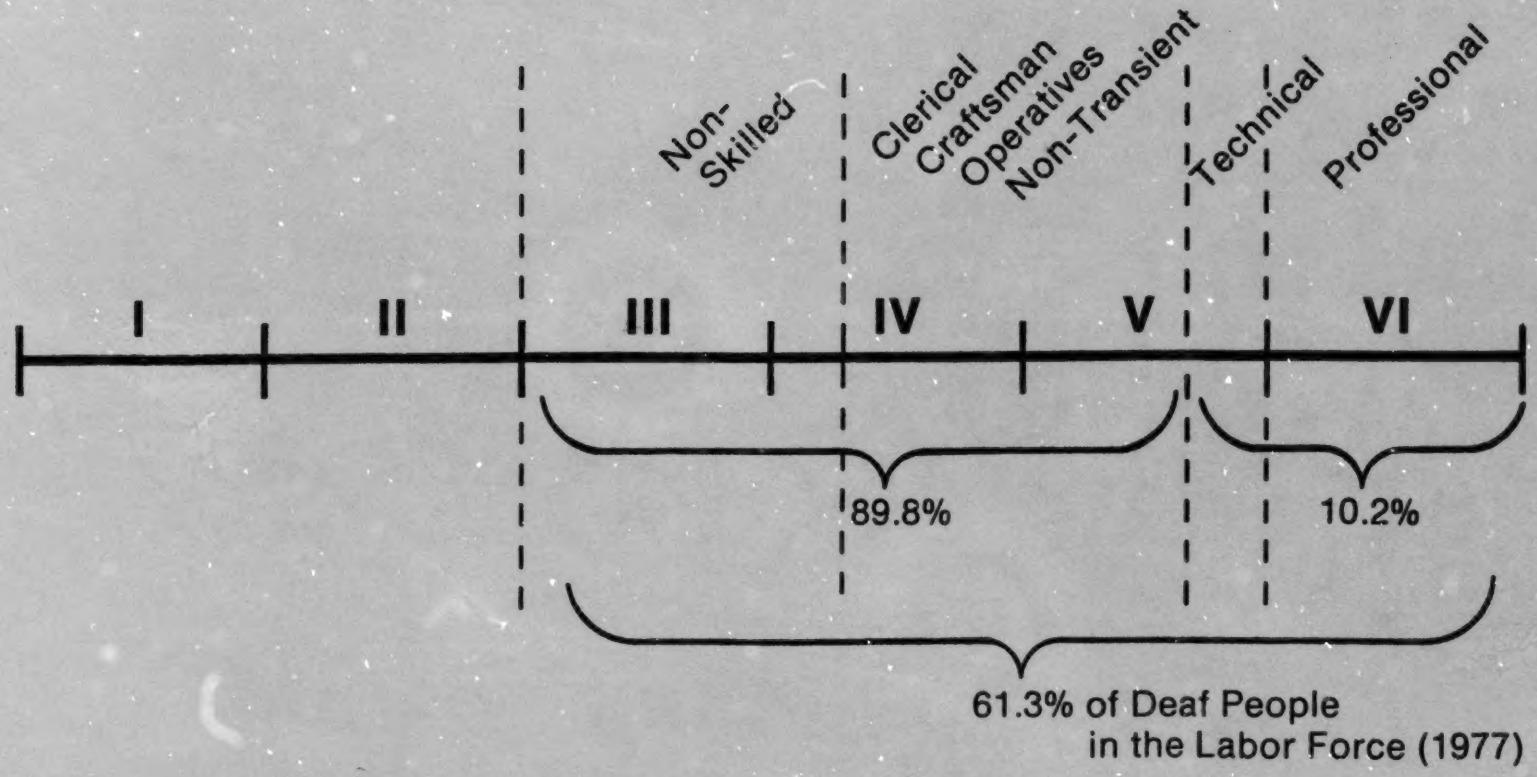
In attempting to apply this model to present occupational data, the distribution would appear as in Table IV. This is presented with the qualifier that what may be representative is the present work force. One must also consider that more current data are not available. With increased future data and more descriptive sociological information, similar configurations in other areas can be developed.

Further study and documentation of these characteristics are necessary to confirm or modify this model beyond our present knowledge. Future research studies with adequate demographic information reported would be most helpful in understanding the impact of hearing loss upon people at all levels of function. The responsibility to look at and qualify our efforts will improve our performance and the quality of life of the people we serve.

Table IV

Distribution by Occupation

Ages 16 to 64



3 PSYCHOLOGICAL ASSESSMENT OF THE VERBAL FUNCTIONING OF POSTSECONDARY EDUCATIONAL PROGRAM APPLICANTS: IMPROVING PREDICTIVE VALIDITY

ROGER M. FALBERG

With the increase in post-secondary educational programs offering supportive services to young hearing-impaired adults with backgrounds of early onset of hearing loss, it should not be surprising that state rehabilitation counselors are increasingly asking pointed questions about the preparation and motivation of clients who request financial support when enrolling in such programs. While Gallaudet College, the National Technical Institute for the Deaf (NTID) and other four-year college programs do some evaluation prior to accepting candidates, state rehabilitation counselors are asking more specific questions and are referring Gallaudet and NTID-level applicants for psychological evaluations in order to obtain specific recommendations. Community college programs often enroll hearing-impaired students without prior screening via formal evaluation tools. There are several reasons for this. No doubt most or all of these reasons are valid ones, but some state rehabilitation counselors who refer clients for evaluation are asking whether a particular client's goals are "realistic" and/or whether community college placement is appropriate.

In part, at least, this seems to be occurring due to a high drop-out rate reported by some rehabilitation counselors in recent years. In addition, community college programs that mainstream their hearing-impaired students into the general population after an initial orientation period offer a large variety of alternative courses and vocational possibilities ranging from "general courses" that are, in essence, two-year liberal arts plans, to very specific vocational training in, for example, carpentry.

Requirements for verbal competency tend to vary widely from one course of study to another at the community college level. The term "verbal" here is used in a very broad sense. Perhaps a more precise term would be "English-language-competency"

--particularly as it relates to reading comprehension plus ability to utilize manual interpreting services comfortably and competently in a community college setting. Such competency, of course, would need to be relatively high in a liberal arts program and minimal in a carpentry program. In between these extremes are a wide diversity of courses ranging from medical technology and computer programming to welding. This is as it should be; vocational horizons for young deaf adults must keep in tune with current developments in the actual working world.

Questions posed by the referring state rehabilitation counselors are often very specific. A hearing-impaired client who aspires to become a dental technician obviously needs greater verbal competency than one who wishes to become a carpenter, and the psychologist who is required to evaluate prospective dental technicians prior to their enrollment in community college courses must take both the client's goals and abilities into consideration. It is quickly becoming apparent that a determination of the traditional "Performance IQ," while helpful, is not always adequate insofar as no reliable correlation has ever been (or is ever likely to be) established between a hearing-impaired client's non-verbal intellectual functioning and the same client's verbal competency. In order to survive and succeed in community college programs for the hearing-impaired, the individual must have at least some verbal competency if he/she is to be able to function. A psychologist who cannot assess the hearing-impaired client's current verbal functioning skills has insufficient data upon which to base a prediction that will be helpful to the referring counselor.

It is important to recognize the crucial role of the client's motivation before proceeding further. Determination and tenacity are vital qualities in any client desiring the services of a state rehabilitation agency for vocational upgrading. These qualities, however, are difficult to measure even for the normal hearing population and are best left to the subjective estimate of the psychologist. The latter will, of course, wish to take into consideration past performance, vocational background and demonstrated emotional stability as well as test scores in assessing this critical factor. It may very well be that current verbal functioning itself can offer some indication of a hearing-impaired individual's determination over a period of years to attain his/her present competency levels. However, the question of motivation is a highly complex one and beyond the scope of this study. The intention is not to dismiss its importance, the issue is best left to later advances in both the field of psychometrics and general research into the question.

The past two or three years have given rise to another, equally important consideration. Educational and human services are being allocated fewer and fewer dollars by the Federal government, and state rehabilitaiton counselors no longer have ample funds with which to support each and every hearing-impaired client in the program of his/her choice. It is becoming more and more imperative, then, that each rehabilitation dollar be as wisely expended as possible. When the individual counselor refers a hearing-impaired client who desires to continue his/her education following high-school graduation, that counselor is asking the psychologist to try to predict the client's potential for success in post-secondary educational facilities now geared to serve the hearing-impaired. In addition, some clients are insisting upon their rights under Section 504 of the 1976 Vocational Rehabilitation Act and requesting support in non-traditional post-secondary programs--including large universities in which supportive services will necessarily be limited to the provision of interpreters. In order to allocate his/her funds wisely, the rehabilitation counselor must rely more upon psychological evaluations in deciding which clients to support. Improved predictive capacity within psychological evaluations will also be of significant benefit to the hearing-impaired client; if supported, the client's

funding from the agency will not be dissipated or rendered inadequate because the counselor is over-involved in simultaneously supporting "poor-risk" clients, and clients who have very limited potential for educational upgrading can be spared a great deal of frustration, trauma and humiliation if they are steered into more appropriate vocational programs such as on-the-job training.

To some extent, it is already possible to obtain a formal estimate of current verbal functioning. Due to the national study done in 1977 by the Gallaudet College Office of Demographic Studies, the Stanford Achievement Test for the Hearing-Impaired is now available and contains normative data on this population, providing psychologists and rehabilitation counselors with specific data on an individual client's scholastic achievement progress in comparison with his/her hearing-impaired peers. This is a positive step in the right direction. There are, however, problems in attempting to use this data to predict postsecondary training success. First of all, if recent achievement test scores are not available to the rehabilitation counselor, they must be obtained. If this is done as part of a psychological evaluation, it is both time-consuming and expensive; up to six hours or more are needed to administer a comprehensive Stanford Achievement Test battery. A second drawback is that even when available, the scores essentially reflect the client's functioning in a well-structured, routine situation. Due to its multiple-choice format, the test gives the subject a great deal of structure and does not require the subject to express him/herself (even with manual communication). The test is also routinely administered within the context of the client's secondary school environment and thus reflects a structured measurement from within a structured situation. When we look to the typical post-secondary educational facility, whether a two-year community college or a four-year program, it becomes apparent that the student must function in a relatively unstructured situation and utilize self-expressive skills to a much greater extent. While achievement test data is welcome, then, it does not permit the psychologist to evaluate the client's current verbal functioning in a situation that is analogous to what the client is hoping to compete within later. The more analogous our measurement tools (tests) are to the actual "goal-situation" (performance within a post-secondary educational facility), the more accurate our predictions should be regarding how successfully the subject (client) will be able to function within the goal-situation.

The Verbal Scale of the Revised Wechsler Adult Intelligence Scale (WAIS-R) may have the potential to provide a psychologist with valuable additional information. It is relatively unstructured in that the questions are "open-ended," and its scoring procedure awards more credit for clarity in self-expression than it does for ambiguity (in Vocabulary, Comprehension and Similarities subtests). It assesses verbal functioning in a variety of ways, and variations between subtests have potential diagnostic value. There are two major problems with this scale as it now stands: (a) there is no normative data on the hearing-impaired population, and (b) it is currently regarded by psychologists as a measurement of intellectual functioning. However, if this scale is modified in such a way that it can significantly improve the predictive value of psychological evaluations conducted upon hearing-impaired individuals considering college application then the costs involved in a national standardization and validation research project would be amply justified. This tool--the WAIS-R Verbal Scale--will be in use for at least another generation; data from a four-year study would still be useful fifteen or twenty years after it was completed. The second problem is currently being resolved; more rehabilitation counselors in the Pacific Northwest who specialize in the hearing-impaired are becoming increasingly cautious and selective in choosing and/or orienting psychologists to whom they refer their clients for evaluations. The works of Levine (1960,1981),

Vernon (1968) and many others have significantly improved awareness among psychologists of the limitations of verbal measuring instruments with the hearing-impaired.

The potential diagnostic value of the WAIS-R Verbal Scale was mentioned briefly above, and is worth exploring in more detail before proceeding further. Without formulating a formal "research hypothesis," data collection was initiated on hearing-impaired clients using a modified WAIS-R Verbal Scale about a year ago. Fifteen years of experience with the original WAIS Verbal Scale (Falberg, 1974) had suggested that when modified, the test provided valuable supplemental data during psychological evaluations--especially when an individual was being considered for postsecondary educational upgrading. The scale's subtest format permitted exploration of the client's ability to function under a variety of stress factors; among them are capacity to attend to and recall a series of digits, concentrate upon a concrete "problem" situation under time pressures, express him/herself when asked to define word meanings, evaluate and decide upon a mature, appropriate course of action in a given hypothetical situation and to define word meanings using manual communication. These capacities and others are assessed in the scale's Digit Span, Arithmetic, Comprehension and Vocabulary subtests, respectively. This is critical information about both verbal and emotional functioning that a reading-comprehension grade-level score in a structured situation cannot provide.

The data presented in this article was compiled from the clinical sample assessed by the writer over the past year when administering his own modified version of the WAIS-R Verbal Scale.

It must be acknowledged that the data reported below is contaminated by several factors. First, the subjects include only individuals referred by rehabilitation counselors in the Pacific Northwest, and do not constitute a random sample from within the parameters of the hearing-impaired population in this region. Also, some of the subjects had other handicaps in addition to their hearing impairments, some were referred for assessment of emotional stability (usually in addition to academic functioning/potential) and still others were classifiable as "hard-of-hearing" rather than "deaf." Two variables were held constant: (a) age of onset of hearing impairment was "prelingual" (i.e., sufficiently early in life to have interfered to at least some extent with acquisition of English language by auditory means), and (b) they had sufficient verbal functioning to be able to read, comprehend and respond appropriately to at least four of the first six questions in the Information subtest. (When a client did not meet this criteria, verbal testing was discontinued and the client's scores were not included.)

As a final note with respect to previous research done in this area, only two previous studies have been located, both done with the original WAIS Verbal Scale (Wechsler, 1955). One (Falberg, 1974) contains insufficient data. The second (Ross, 1970) compared the Verbal IQ's of a sample of hearing-impaired young adults from two state residential schools for the deaf to the Performance IQ's for the same sample. In the Ross study, the Verbal Scale was administered manually by the examiner(s). This writer strongly believes that administration via typewritten (or printed) questions reduces the number of potential variables within the testing situation in that inter-examiner reliability should be substantially increased. In addition, the Ross study provides no data with respect to subtest variability or reliability.

METHOD

Between mid-July, 1981 and late August, 1982, psychological evaluations were conducted with hearing-impaired clients referred by several sources. A substantial majority of the clients were referred by state rehabilitation counselors in Washington State; others were referred by parents and attorneys desiring evaluations for competency to stand trial or possible emotional disturbance and a few miscellaneous reasons. Three subjects were classified as "hard-of-hearing," and there was one occasion when an interpreter was used due to the fact that the client had intelligible speech but no knowledge of manual communication and the examiner was severely to profoundly hearing-impaired. However, in all cases the onset of the client's hearing loss was in early childhood. A few of the subjects had had some college education, but none were graduates of any four-year college program. In the case of those who had some college, the question posed by the referring counselor was whether it was recommended that the client continue with his/her postsecondary educational program. Clients were not screened by degree of hearing impairment; the only criterion was that the age of onset be prelingual. Purpose for administering the Verbal Scale of the **Wechsler Adult Intelligence Scale, Revised**, was (a) to obtain an assessment of the client's current level of verbal functioning in an unstructured, stressful setting and (b) for diagnostic purposes in order to obtain some indication of the effects of possible emotional disturbance upon the client's thought processes under standardized circumstances.

The questions in the Verbal Scale of the WAIS-R were first modified and simplified, then typewritten separately upon 5½" x 8½" blank sheets of paper, gathered into sections and inserted into a 6" x 9" looseleaf notebook. They were administered to the subjects at the same intervals as prescribed by the revised standard administration procedures for the WAIS-R itself; that is, order of subtest administration was: (a) Information, (b) Picture Completion (c) Digit Span, (d) Picture Arrangement, etc. The subjects were asked to read the typewritten questions and respond; if the subject did not understand a specific word in the question or indicated that he/she did not understand the question itself, a note was made on the protocol and the examiner immediately went on to the next question. In this manner, the procedure was held constant from one subject to the next. The only exception was the Similarities subtest; the typed question asked "In what way are an **orange** and a **banana** the same?" and the examiner supplemented this by signing the question (using the Y-same sign to suggest "alike"). The subject was then told manually that following questions would be of a similar nature and that he/she was to concentrate upon the underlined words--<u>orange-banana</u>, <u>dog-lion</u>, etc.--and explain how they were "alike" or "similar."

The Arithmetic subtest, it will be noted, is particularly awkward to administer in this way since timing must begin as soon as the question is read by the subject; this was handled by asking the subject to move his/her finger under the typed question as he/she read it, with timing to begin when his/her finger stopped moving and he/she obviously was concentrating upon arithmetical operations. In the Digit Span subtest, the numbers were administered in the "simultaneous" manner for all subjects with the examiner using his voice as a supplement when requested to do so by the subjects. (For the three "hard-of-hearing" subjects, this subtest was omitted entirely due to the fact that the subject did not know the manual numbers and his/her hearing impairment would not permit reliable comprehension of the numbers from auditory administration alone.) Subjects responded to all subtests in whatever form of communication was appropriate for the subject; in an overwhelming majority of the cases (42 out of 43), the subjects' replies were at least supplemented by manual communication.

Scoring was done in accordance with the criteria set forth in the WAIS-R manual,

and subtests were discontinued after the subject had met the criteria for discontinuation in the standard test.

The population included in this study was 43 hearing-impaired subjects between the ages of 16-00 and 46-07 at the time of testing (M = 22.48 years). Twenty-three females and twenty males were included.

RESULTS

Table 1

Means, Standard Deviations, Standard Errors of Means and Range of WAIS-R Scores for 43 Hearing-Impaired Subjects

Performance Scale	No. (23 Females) (30 Males)	Mean	Standard Deviation	Standard Error of Mean	Range of Scale Scores/IQ's
Picture Completion	43	9.53	2.05	.316	5-13
Picture Arrangement	43	11.42	2.738	.423	5-17
Block Design	43	10.581	2.805	.427	5-15
Object Assembly	43	10.302	2.204	.336	5-14
Digit Symbol	43	10.16	2.332	.356	5-15
Performance IQ	43	104.279	11.938	1.842	75-125
Verbal Scale					
Information	43	6.348	1.395	.215	4-10
Digit Span	40	7.1	2.672	.427	3-13
Vocabulary	43	5.139	1.172	.180	4-8
Arithmetic	43	6.441	2.335	.360	2-12
Comprehension	43	5.255	2.114	.326	2-10
Similarities	42[a]	5.619	2.389	.373	2-13
Verbal IQ	43[b]	78.953	8.891	1.371	65-97

[a] Subtest not administered to one male due to time limitations.

[b] Pro-rated where necessary.

Statistical tests for significant differences between the various means were not performed. Since this sample was a clinical sample rather than a population sample, there is serious question as to whether any significant differences found would be applicable to the hearing-impaired population as a whole.

DISCUSSION

It will be immediately noted that the Performance IQ for the above sample is slightly higher than would be expected in a broader sample. This is to be anticipated; state rehabilitation counselors do not request psychological evaluations for clients who are, by reasons of obvious low-verbal functioning, inappropriate for postsecondary educational facilities. Therefore, it can safely be assumed that the sample was "screened" by the referring counselors to eliminate those most obviously inappropriate for higher education. A similar screening undoubtedly took place for the very high-functioning client whose verbal skills most obviously justified support for educational upgrading. The client most frequently referred would be one whose verbal functioning (on the basis of the referring counselor's interviews with the client) was in the "borderline" area or whose emotional stability and/or motivation were questioned on the basis of background information. Given this, it is not surprising that the average client referred would have slightly higher levels of non-verbal intelligence than the hearing-impaired population as a whole. However, the target population for this research is the group most in need of assessment of current verbal functioning so that those evaluating them can make some reasonably-accurate prediction of the likelihood of success in postsecondary educational facilities.

There seems to be a smaller standard deviation from the mean in some of the verbal subtests and in the total verbal scores than for estimates of non-verbal functioning. The same holds true for the standard errors of the mean. The standard deviations seem much smaller than in other subtests--both verbal and non-verbal. Other verbal areas have standard deviations and standard errors that are very similar to those found in non-verbal functioning data. In these respects, the findings seem to show that it is both feasible and practical to obtain normative data on current verbal functioning for those hearing-impaired young adults who are under consideration for support by state rehabilitation agencies for educational upgrading in postsecondary educational facilities.

The smaller deviation and error scores for the Information and Vocabulary subtests suggests that the score distribution for these instruments is more "peaked" than in other subtests; i.e., there is a sharper tendency towards the means of these two subtests; with fewer scores falling at the extremely high or low ends of the frequency distribution. To achieve a closer approximation to a "normal curve," it should be possible and feasible to add (and standardize) new items so that item difficulty in the Information and Vocabulary subtests is made more gradual in order to obtain more precise estimates of the subject's current knowledge of everyday information and of word meanings.

All of the verbal means obtained for this study were depressed in comparison with those obtained on the normal-hearing population included in the WAIS-R standardization sample (Wechsler, 1981). This should surprise no one. It is neither hypothesized nor predicted that verbal scores will yield indices of a hearing-impaired subject's "current intellectual functioning." Nor would the objective of a revision/modification standardized on this population be carried out in order to compare the verbal functioning of this group with that of its normal-hearing peers. To reiterate,

the only question at issue here is whether a "verbal scale" can be constructed along the same format as that used in the WAIS-R in order to compare the subject's current verbal functioning with that of his/her hearing-impaired peers having comparable etiologies of early onset of hearing impairments.

The data seems to show that this is feasible, and that reliable normative data can be gathered for such purposes.

Comments on the Individual Verbal Subtests

The writer has some comments and suggestions to make with respect to how the verbal subtests in the WAIS-R may best be modified in order to achieve a more accurate assessment of a hearing-impaired individual's verbal functioning in comparison with his/her peers.

Information Subtest. A significant number of subjects failed Item #5 (Sun). Although the question was modified to read: "Does the sun rise in the north, east, south, or west?", correct responses were the exception rather than the rule. Geography questions--e.g.: Panama, Brazil--were more frequently passed than were "judgment" questions such as #15 (Clothes). Number 8 (Armstrong) is considered inappropriate for a hearing-impaired population, pertaining as it does to a musician, and consideration should be given to its modification or elimination. Questions of easily-stated fact such as #6, #10, and the like should be retained, although #6 has been found to be more easily understood when modified to read "Name four men who were Presidents of the United States between 1950 and today." In constructing a revised Information subtest, many items can be retained in a modified form but their relative difficulty must be evaluated and some new items added so that difficulty will ascend more gradually. The first four items in the current revision are very useful when administered to all subjects; this can serve as a "screening" device, with testing discontinued if the subject cannot respond correctly to at least three of the items. In addition, they provide a "warm up" that has noticeably calmed some highly apprehensive hearing-impaired individuals. This procedure also helps to create an atmosphere in which the examiner can indicate that the subject is free to respond in Ameslan or whatever communication method is most comfortable for him/her.

Digit Span. It has been startling to note the high frequency of subjects who perform significantly better on Digits Backward than Digits Forward with this revision. This tends to support hypotheses on the spatial orientation of hearing-impaired individuals reported by Benderly (1982) and other researchers. However, it may be wise to consider inserting a pair of two-digit "warm up" items in the Digits Forward sequence in addition to the warning in the instructions that the examiner will not repeat any of the series.

Vocabulary. A sharp increase in the rate of failures has been noted after Item #8 (Assemble). There is a need to insert more items so that item difficulty will increase more gradually.

Arithmetic. Although awkward, the administration procedure described earlier is workable provided that Item #2 be administered to all subjects as a "demonstration" item once the instructions have been given. The wording in the revised Arithmetic scale has been enormously simplified over that of comparable items in the earlier edition of the same scale, and this makes modification of items 2 through 13 less critical.

Comprehension. After modification of the various items to improve clarity (e.g.: #2 is altered to read: "Pretend you are walking on the street. You find a sealed envelope. There is a name and address on it, and it has a stamp on it. What would you do with it?"), it is the writer's impression that this subtest is invaluable in that the subjects' responses can provide clues to emotional disturbance and/or confabulation of thought processes. However, these clues can be observed only if the examiner is fluent in Ameslan in addition to other variations of manual communication (Manual English, SEE, etc.). This impression, however, needs to be empirically substantiated. At the present, scores that are three-or-more scale score points below the mean of other verbal subtests should be examined carefully for obviously bizarre or immature responses.

Similarities. While item difficulty needs to be carefully reassessed in a modification for the hearing-impaired (Items 4 and 7 seem to have unusual difficulty, while Item 9 is frequently easily passed by subjects who failed on the preceding three), this subtest seems to adequately assess the subject's ability to utilize abstract verbal concepts requiring single-word responses. Examples are Items 1-3 and Item 9. Those requiring explanations were generally more difficult, and for this reason item difficulty should be carefully reassessed in any modification.

The Verbal Scale as a Whole. The WAIS-R Verbal Scale is a very helpful diagnostic tool in that it provides information on the individual's ability to express him/herself under a variety of stressful, relatively unstructured circumstances. This is information that current achievement test scores do not provide, yet it is critical information to be taken into consideration when attempting to predict whether the hearing-impaired client can utilize what verbal skills he/she has in stressful postsecondary educational situations. It is due to this sensitivity of the various subtests that the modification and utilization of this scale is advocated when evaluating this population and for the purpose of predicting success; it is **not** advocated that the Verbal IQ or the difference between this and the Performance IQ will be of significant predictive value. The Full-Scale IQ has even less meaning, and can be disregarded. Even if the Verbal Scale is successfully modified so that its scale scores can be discussed on similar terms as with the Performance Scale, the Verbal and Performance Scales should always have distinct and separate identities as diagnostic instruments in psychological evaluations for the hearing-impaired.

In closing, a final note of caution is needed. It is anticipated that those individuals administering and scoring any current verbal functioning scale based on this research be fluent in Ameslan (American Sign Language) and its variations. The use of an untrained interpreter as an intermediary when the client expresses him/herself in Ameslan is not recommended. An interpreter would, to some extent, have to modify and actually interpret the responses of a client using manual communication, and the interpretation would affect scoring. Conceivably, a trained interpreter--i.e., a certified interpreter who is him/herself a psychologist or psychometrist--could administer and score a modified scale such as that which is proposed here and, if necessary, can be supervised by a qualified psychologist who is responsible for interpretation of the profile and its resulting data.

REFERENCES

Benderly, B.L. Deaf thoughts. Science 82, March, 84-85.

Levine, E.S. The Psychology of Deafness, New York: Columbia University Press, 1960.

Levine, E.S. The Ecology of Early Deafness. New York: Columbia University Press, 1981.

Ross, D.R. A technique of verbal ability assessment of deaf people, Journal of Rehabilitation of the Deaf, 1970, 3, 7-15.

Sachs, B.B., Trybus, R.J., Koch, H.R., & Falberg, R.M. Current developments in the psychological evaluations of deaf individuals. Journal of Rehabilitation of the Deaf, July, 1, 1974, 136-139.

Vernon, M. Fifty years of research on the intelligence of deaf and hard of hearing children: a review of literature and discussion of implications. Journal of Rehabilitation of the Deaf, July, 1, 1968, 4-7.

Wechsler, D. Manual for the Wechsler Adult Intelligence Scale. New York: Psychological Corporation, 1955.

Wechsler, D. Manual for the Wechsler Adult Intelligence Scale - Revised. New York: Psychological Corporation, 1981.

4 COMMERCIAL VOCATIONAL EVALUATION SYSTEMS AND DEAF PERSONS

STEVE SLIGAR

There are numerous Commercial Vocational Evaluation Systems (CVES) on the market today, and each has its own particular strength and drawback. There are as many different approaches and philosophies as there are systems. For example, a JEVS work sample measures and reveals individual traits that will be viewed differently than those of a person participating in a McCarron-Dial work evaluation. Additionally, a professional utilizing the Vocational Diagnosis and Assessment of Residual Employability may select a commercial work sample such as a Valpar component to clarify a specific trait (Sink & Field, 1981). The developers of the Systematic Approach to Vocational Evaluation indicate with some stipulations that other work samples (including commercial ones) can be substituted for those outlined in the manual.

The continued existence of the various CVES is proof that they are being utilized in the assessment process. As the market for the CVES is broadened to include not only rehabilitation centers but also educational settings, manpower training programs, vocational/technical schools, and other settings, the likelihood of a deaf person being evaluated with a commercial system is greatly increased. While there has been no comprehensive study to determine which CVES is used most widely, a survey of preferred CVES performed by Texas Vocational Evaluation and Work Adjustment Association (TX VEWAA) identifies 15 evaluation systems that could be used in a model evaluation unit (Ludlow & McGlasson, 1982).

While there are many questions raised with regard to the use of these systems, all issues are further magnified when the primary participant in the evaluation is deaf. As indicated in **Deaf Evaluation and Adjustment Feasibility** (D.E.A.F.) (Watson, 1977), there are real advantages in the use of CVES, e.g., targeting specific subgroups within the deaf population or measuring some specific traits applicable to a general handicapped population. However, there are major disadvantages as well.

These primarily relate to standardization problems resulting from changing instructions from verbal to signed, or simplifying them, and the lack of content validity. Many clients may also have difficulty grasping or understanding the relationship between actual work and the task at hand. These problems are further compounded by the increase in the number of multiply handicapped deaf persons. The presence of an additional handicap in combination with deafness has a multiplicitive effect on the education and rehabilitation process (Schein, 1974). There also exists a real possibility that there are more multiply handicapped deaf persons in the rehabilitation process than are coded by the vocational rehabilitation counselor. This could be due to several factors, including poor communication between the rehabilitation professional, the physician, and the client (Danek & Lawrence, 1982).

CONSIDERATIONS

In light of the above factors, there are several considerations which should be made while attempting to assess the needs of the "deaf individual with the most severely handicapping disabilities" (Sanderson, 1980). The reader is directed to the D.E.A.F.(Watson, 1977) publication which contains a chapter on the use of commercial work samples with the hearing-impaired population. In order to avoid redundancy in the update of these systems, only new information will be presented. Eight of these CVES (Hester, JEVS, S.A.V.E., Singer, TAP, TOWER, Valpar, and WREST) are reviewed again, and five new systems (VIEWS, Micro-TOWER, PVRB, VDARE, and MDWES) have been added. Previous analysis of these CVES with deaf persons divided the considerations into eight areas: (1) company name, (2) organization, (3) norms, (4) process, (5) administration method(s), (6) scoring, (7) training, and (8) general comments (Sligar, 1977). The reader is directed to **A Comparison of Commercial Vocational Evaluation Systems**, by Karl Botterbusch, as this publication thoroughly reviews fourteen CVES and their use within the general field of evaluation. (Note: The second edition of this publication will be available about December 1, 1982.) This paper will focus on updates in some of the above areas, as well as the following considerations:

1. Standardization/Administration--How are tests administered, and what are the possible effects of changing the recommended procedure? This also includes some comments from the companies as to their perception of the change in format from verbal to signed instructions and if there has been any work done toward this end.

Shiels (1980) indicates that one rationale for development of deaf norms is for standardization purposes. Problems encountered with this include lack of skilled evaluators, difficulty arising from regional variation of signs, and varying communication levels of deaf persons themselves. The latter two have a significant impact on standardization procedures involving videotaping of instructions.

2. Comparative information/norms--Are norms for deaf individuals available? The entire issue of the appropriateness of specific disability group norms has not been resolved within the general field of evaluation. Comparison of a disabled (deaf) person with peers may not give an accurate picture of how that individual performs in the working world (McCray, 1979, and Shiels, 1980). Additionally, there also exists the possibility that employed worker norms may be unfair, that local industry norms are too narrow in scope, and that predetermined motion time systems may not be transferable to local standards (McCray, 1979). Conversely, norms for deaf individuals would allow for a fairer comparison of the individual's functioning, considering

communication skills, deprivation due to hearing loss, etc. Information on industrial norms, either employed worker or predetermined, allow for assessment of the client's current functioning as it relates to competitive standards.

3. Training of evaluators and use of the system with a deaf population--What has been made available to purchasers and do companies prepare evaluators to work with this population? Since materials used, etc., were not available for review, this section only reflects what was reported by the company. No consumer comments were available or solicited.

4. Utility--Practical applications of the systems with a deaf population. For which general type of deaf person, i.e., multiply-handicapped, minimal language skill, senior high school student, etc., is this system appropriate? What use can be made of the system as it is or with only a change in instructions from verbal (spoken) to sign?

5. Future directions, as commented on by the manufacturers.

6. Other comments for consideration.

Note: The reader may consult Appendix A for a list of sources for purchase of the systems. Additionally, systems are listed by manufacturer.

I. **CAREER EVALUATION SYSTEMS** (CES) manufactures and markets the Career Evaluation Series 200 and 201, previously called the Hester Evaluation System, and the Series 100 and 300, which are directed to specific target groups.

Standardization/Administration. Most of the materials could be handled by translation of the standardized instructions into sign language. Instructions have been based on a person with a 4,000 word vocabulary, and quite a few demonstrations are included. It is the opinion of the marketer that this would not significantly violate standardization procedures.

Comparative information. CES basis for comparing clients' performance is to use competitive standards. It should be noted that the current producer has redefined the **Dictionary of Occupational Titles** (DOT) working conditions for talking/hearing. This is to stop preclusion from certain jobs which could be modified or may not really require full ability to talk/hear. The gradations are as follows: (a) normal levels, no restriction; (b) hard of hearing, able to use telephone; (c) deaf, able to read lips; (d) deaf, unable to read lips.

Training. Training is required, and currently specific modifications and/or techniques of use of the system with a deaf person are not included in the training. However, producers did note that they would be willing to include this in the training if requested to do so by a purchaser.

Utility. CES continues to be a useful instrument in preliminary screening of deaf individuals and can be a complement to the evaluation process. However, due to the violation of standardization procedures in this basically psychometric approach to evaluation, the validity of the results could be highly suspect. Depending

on the approach of the evaluation system, this can prove a valuable tool to the professional, but could provide minimal occupational information or other data to the client. It should also be noted that the CES have maintained computer records on all clients participating in the process, which could serve as a very good data base for future studies.

Future directions. CES has planned to expand the output for specific applications and use with non-handicapped populations (an abbreviated battery) and a new battery keyed primarily to an EMR population who have marketable skills. These individuals would be screened for 100 jobs identified by the Department of Labor as jobs which can be performed by this population. Clients will receive a vocational quotient for each job to enable the counselor to make a determination as to placement in the most appropriate job(s). This could have a positive impact on placement procedures for deaf mentally retarded individuals, as they should be able to score as well on a battery of tests of this type as their hearing counterparts.

II. **VOCATIONAL RESEARCH INSTITUTE** (VRI) produces and markets the Philadelphia Jewish Employment and Vocational Services (JEVS), Vocational Information and Evaluation Work Samples (VIEWS), and the Vocational Interest Temperament and Aptitude System (VITAS). The JEVS is a system containing 28 work samples which are arranged in 12 work groups from the **Guide for Occupational Exploration** (GOE). These groups include 05.03 Engineering Technology, 05.05 Craft Technology, 05.09 Material Control, 05.10 Crafts, 05.12 Elemental Work: Mechanical, 06.02 Production Work, 06.03 Quality Control, 06.04 Elemental Work: Industrial, 07.02 Mechanical Detail, 07.03 Financial Detail, 07.05 Records Processing, and 07.07 Clerical Handling. The JEVS was originally arranged in 10 Worker Trait Groups (WTG) from the 3rd Edition of the **DOT**. This is an effort to utilize new DOT (4th Edition) information. There has been no change in the work samples. The VIEWS is a system containing 16 work samples grouped into four areas of work, and six Worker Trait Groups from the 3rd Edition of the **DOT**. The VITAS is not reviewed.

Standardization/Administration.

JEVS. Administered primarily through a combination of verbal and demonstrated instructions with some written instructions (see also, Sligar, 1977).

VIEWS. All instructions are verbal or physical, with no reading required by the client. The method of instruction lends itself very easily to translation into sign language and gestures. The instructions indicate what physical prompting is necessary and should be done at the same time the verbal instructions serve to reinforce the gestures. For example, the VIEWS Manual (1977) Work Sample #4, Collating and Stapling, instructs the evaluator to "indicate paper and collating rack" and to simultaneously voice to the client, "Your job is to make pads of paper". As this example demonstrates, the technical instructions to the clients have been written in such a way as to complement the standardized demonstrations, which should have minimal effect on administration of the work sample to a manual communication deaf person.

Comparative information.

JEVS. There is no specific information about deaf persons' performance on the JEVS.

VIEWS. System was normed on 452 individuals classified as mentally retarded with a mean I.Q. of 53. There is no comparative information for deaf or mentally retarded deaf persons. It should also be noted that the VIEWS Manual (1977) states that "it is JEVS' intention to continue gathering normative data from facilities using the VIEWS system and to publish updated norms". At the present time there are no norms available for deaf persons.

Training. This is required for use of either system. At the present time there is no specific training in deafness available, but the company indicates they will address the issue of deafness if requested in the initial or follow-up training consultations.

Utility.

JEVS. This could be useful for screening most hearing-impaired individuals and as an observational tool (see also, Sligar, 1977).

VIEWS. This system is useful in the evaluation of the multiply handicapped minimal language skill deaf individual. Of particular interest is the separation of learning from performance during the evaluation process. The manual provides standardized instructions, as outlined above. The training phase of the work sample requires that the evaluator count the number of trials, which affects ratings as well as outlines criteria for determining mastery of the skill, prior to administration of the work sample for determination of production. This process also lends itself to the concrete demonstrated instructions and hands-on practice needed in evaluation of minimal language skill deaf persons.

Future directions. Manufacturer indicates that as new information is gathered on either system, it will be disseminated to the field and that at the present time there are no specific plans regarding deaf persons.

Comments.

JEVS. This system does offer the evaluator an opportunity to baseline clients' work behaviors, and it is important to rely upon the observational level. It was pointed out by company representatives that the change in standardization from prescribed procedures does result in a changing of the level of abstract reasoning required by the client for completion of the sample.

VIEWS. This CVES shows possibilities for evaluation of the mentally retarded deaf person, as its sequential power-based work samples are appropriate for this population. There is minimal occupational information provided to the client, but it does allow the evaluator to observe the client's learning and performance skills while on these particular tasks. These work samples may not be appropriate for the deaf individual of normal intelligence who communicates through Ameslan.

III. S.A.V.E. ENTERPRISES developed and markets the Systematic Approach to Vocational Evaluation (S.A.V.E.) Packages A and B. Package A consists of nine work samples designed to evaluate the vocational potential of the academically, culturally, or socially deprived, learning disabled, and educable or trainable mentally handicapped. Package B, which includes Package A, contains 47 work samples. Sixteen WTG's from the 3rd Edition of the DOT are assessed in Package A, and Package B includes an additional 30 WTG's for a more general population. Since S.A.V.E. Package B utilizes the same methodology and basic format as Package A, they will be treated as the same system. S.A.V.E. Enterprises does not market hardware. The purchaser must purchase the materials for the work samples locally or construct them at the facility.

Training. Training is available for purchasers of the system but is not required. The developers indicate that they will address the use of this approach with a deaf population if requested by the purchasing agency.

Utility. Probably the strongest advantage of the S.A.V.E. Packages are the logical systematic approach to the evaluation process. It is not only helpful to the evaluator but also to the client in its basic approach of permitting the client to select WTG's through determination of physical and mental abilities prior to administration of work samples.

Future directions. The developers of S.A.V.E. continue to re-define work samples and observations, thereby enabling the evaluator to predict more accurately clients' vocational potential.

Comments. Of particular concern to the evaluator using this system with a deaf person is the part of the administration where the evaluator explains the various WTG's to deaf persons. The paraphrased descriptions of the WTG's are taken directly from the DOT. As pointed out by Botterbusch (1982), these require a level of comprehension and sophistication usually not present in many (deaf) rehabilitation clients. There would be a great deal of burden placed on the evaluator to make sure that the client understands the concepts being presented. If this is used with the deaf person, a great deal of supplementary material in the form of explanation and pictures should be used. Additionally, as with any system using the criteria from the DOT, some clients may be precluded from jobs due to the talking/hearing requirements which may or may not be necessary within the local industries. The S.A.V.E. Manual also contains a copy of an example report which encourages the evaluator to include possible placement suggestions in the report. The instructions to the evaluator indicate that valid WTG's should be identified, along with specific example job titles and example industries.

IV. SINGER EDUCATIONAL DIVISION produces the Vocational Evaluation System which is usually called the Singer System. This has 25 separate work samples, and each is in a self-contained carousel.

Standardization/Administration. These procedures involve the client listening to instructions through earphones while watching a filmstrip. This not only provides the work sample instructions but also some additional occupational information, as it attempts to relate the work samples to the world of work. Seven of the samples

have been modified for use with hearing-impaired populations. These samples include: (1) sample making, (2) bench assembly, (3) small engine service, (4) production machine operation, (5) household and industrial wiring, (6) packaging and materials handling, and (7) electronics assembly. The modifications include a translation of the spoken instructions to a captioned filmstrip format. Primarily, the captions provide tool identification information. This is supplementary to the pictorial instructions, which demonstrate the procedures as well.

Training. This is available but not required. Training in the use of the system with a hearing-impaired population is available upon request by the purchaser.

Utility. Singer evaluation continues to be a good source of occupational information for a literate deaf person. Even with the modifications that have been done, there remain some considerations for the evaluator utilizing the modified samples. First, the evaluator would need to make sure that the client reads at the same level as the instructions. If the client is not able to comprehend the instructions, he would probably gain more occupational information and do a better job on the sample with the use of a signing evaluator or an interpreter. Second, many deaf persons, particularly those involved in the rehabilitation process, have extremely poor reading skills. By using a vocational assessment tool that relies on the client's weakest mode of communication, the evaluator has the risk of setting the client up for failure. Additionally, for the non-reading deaf person this could serve as a barrier to motivating the client to complete the evaluation process. Lastly, the format used by Singer provides for checkpoints during the administration of the sample when the evaluator is asked to review the client's work. The evaluator needs to closely monitor deaf persons while they are at work on any of the stations.

Future directions. These include modification of the format for all of the remaining work samples. Singer also plans to gather normative information on all of the samples after modifications have been completed (see also, Sligar, 1977).

V. TALENT ASSESSMENT INC. Markets the Talent Assessment Programs (TAP). This CVES consists of ten tests designed primarily to measure perceptual, discrimination, and dexterity skills of the evaluee.

Standardization/Administration. It is the opinion of the marketers that there is no significant problem with changing the verbal instructions to signed instructions. The company representative pointed out that it is important for the client to understand the instructions and that the standardized procedure can be supplemented with additional demonstrations, etc. He further stated that the updated manual emphasizes that the change in mode of instructions is permissible as this will not affect the results.

Comparative information. There have been no norms specifically developed for a deaf population. This was not pursued, in the opinion of the company, since deafness will not affect the skills being measured. It was pointed out that physical handicaps would affect performance on these tasks.

Training. This is available and required for the initial purchase of the system. Consideration in training is given to different disability groups, including deaf persons, at the request of purchasing facility. Specific issues related to deafness, sign language, etc., are addressed through the use of outside consultants.

Utility. The TAP could be used as part of the assessment process of any non-physically handicapped deaf person (see also, Sligar, 1977).

Future directions. There are no changes planned within the TAP. The Talent Assessment Inc. does plan to market an aptitude assessment of an individual's clerical skills and another in non-mechanical areas, i.e., service occupations. These will be along the same lines as the TAP. This comapny is also marketing a talent development program, which is a training program designed to enhance handicapped persons' perceptual motor or work behavior areas to enable them to enter employment. A task analysis approach was used in the development of this program.

Comments. The TAP has proven to be useful in the assessment of non-physically handicapped deaf persons and is a complement to other evaluation techniques. Occupational information is provided to the client by the evaluator through explanations while the client is participating in the system.

VI. **THE ICD REHABILITATION AND RESEARCH CENTER** has developed, manufactures, and markets the TOWER and Micro-TOWER commercial vocational evaluation systems. The TOWER consists of 93 work samples that are arranged into 14 job training areas. There are 13 work samples in the Micro-TOWER system, and these purport to measure eight specific aptitudes, plus general learning ability.

Standardization.

TOWER. This system continues to rely primarily upon written instructions at approximately a 7th-grade level. These instructions are supplemented by the evaluator's demonstrations and verbal instructions as needed. Sligar (1977) presents a more detailed review on the use of the TOWER with deaf persons.

Micro-TOWER. The primary method of administration is through audio instructions contained on a cassette tape which is played for the group of evaluees. The tape stops at pre-set times, and the manual instructs the evaluator to stop the tape as may be necessary to ensure that the clients understand the task at hand. The instructions also include visual illustrations, demonstrations by the evaluator, and provide opportunities for the client to practice the work sample prior to administration of the task. There are no written instructions, but some of the tasks do require a reading level at about the third to fourth grade. Videotaping for all 13 of the work samples has been completed. The company representative indicated that the videotape package is currently being used at two facilities by evaluators who know sign language. This is an important fact as the evaluator of deaf persons must explain further or supplement the videotaped instructions just as the audio instructions are clarified by voice. This would be an extremely difficult task if the evaluator does not know sign language.

Comparative information.

TOWER. No specific information for use with the hearing-impaired population is available.

Micro-TOWER. Norms are available on 19 different groups. However, no specific information on the hearing-impaired population is available.

Training. Training is available, and purchasers are strongly encouraged to participate in the training, but it is not required. The specific issue of use of the TOWER or Micro-TOWER system with the hearing-impaired population will be addressed at the request of the purchaser or participant in the training program.

Utility.

Micro-TOWER. The separation of learning from performance is an important aspect of this system. As is often the case of evaluating a minimal language skill person who may have difficulty understanding what is required prior to actual testing, this system attempts to factor out the possibility of poor performance on the part of the client due to not understanding or mastering the task prior to testing.

Another important part of the Micro-TOWER is the use of group counseling techniques to determine the evaluee's interest, values, etc. The integration of work sampling with group counseling techniques may allow the deaf individual to see more clearly the relationship between tasks performed and reasons for these tasks. Also included in the initial administration is occupational information in the form of pictures depicting jobs related to the work samples.

TOWER. This system continues to offer the higher functioning deaf rehabilitation client the opportunity to acquire a significant amount of hands-on occupational information and experience while in the evaluation process. A great deal of the utility of the system depends on the willingness of the evaluator to develop pre-screening devices to determine appropriateness of work sample administration. The ability of the evaluator to use an interpreter or to sign the instructions at a level appropriate for the client to understand the task expected is another variable.

Future directions. There has been no work on videotaping instructions for the TOWER system. The ICD Rehabilitation and Research Center does offer assistance in the development of local client norms but has no plans to develop normative information for the hearing-impaired population at this time.

Comments.

TOWER. There have been no significant changes or updates with regard to the TOWER system and the hearing-impaired population from the previous work done in 1977 (Sligar, 1977).

Micro-TOWER. Most deaf persons could participate in this process. It should be noted that this system is not intended for use with trainable mentally retarded individuals or persons with an above-average I.Q. Provided the deaf person(s) did not fall into either one of these groups, they could be mainstreamed into the Micro-TOWER system through the use of an interpreter for translation of the tapes into sign language or with a signing evaluator. Due to the allowances that are made for the evaluator to stop the tape at any time to ensure that the client understands what is expected, there should be minimal violation of standardization procedures. Micro-TOWER could also be used with all-deaf groups, but consideration should be given to ensuring that the clients have approximately the same level and mode of communication skills. For example, if an oral deaf person and a manually-communicating deaf person were in the same group, it may be necessary to have two separate

interpreters, two separate evaluators, or two repetitions of instructions, to ensure that each client understands the process and what is involved.

VII. **VALPAR CORPORATION** developed, manufactures, and markets the Valpar Component Work Samples series (VCWS). At present there are 16 separate and self-contained work samples and Valpar No. 17, the Pre-Vocational Readiness Battery (PVRB), which is considered a separate series of tasks. The Valpar CWS were initially designed for use with a general population, whereas the PVRB is directed toward assessment of mentally retarded persons. Through a variety of tasks the PVRB evaluates the individual in developmental assessment, workshop evaluation, vocational interest screening, social interpersonal skills, and independent living skills.

Standardization/Administration. In all of the Valpar and PVRB manuals (1974 and 1978), the evaluator is instructed to make sure that the client is aware of what is expected of him/her. Instructions are written in such a manner as to allow for standardized procedure to include demonstrations and supplemental assists from the evaluator as necessary.

Valpar CWS. These rely primarily on spoken and demonstrated instructions. In two work samples, Clerical Comprehension and Money Handling, there are written instructions included for the clients. Presently, videotaped instructions in sign language are available for all of the CWS except for No. 14, Integrated Peer Performance. The technical aspects of the videotape are acceptable, and the instructions are presented in American Sign Language, including some demonstrations.

PVRB No. 17. The manual recommends that while different portions of the test can be administered, depending upon clients' needs, Part A, Patterning/Color Discrimination/Manipulation, "has been specifically developed to establish the evaluee's most effective mode of understanding instructions" (PVRB Manual, 1978). The three levels of instructions are: (1) verbal only, (2) verbal plus a demonstration, and (3) verbal, demonstration, and a physical sample to match. The evaluator is then instructed to follow the instruction modality that works best with the client throughout the rest of the battery.

Comparative information

CWS. Information on a variety of different groups, including normative data on use with a deaf high school population for 12 work samples, are available. These samples are: (1) Small Tools (Mechanical), (2) Size Discrimination, (3) Numerical Sorting, (4) Upper Extremity, (5) Clerical Comprehension and Aptitude, (6) Independent Problem Solving, (7) Multi-Level Sorting, (8) Simulated Assembly, (9) Whole Body Range of Motion, (10) Tri-Level: Measurement, (11) EHF Coordination, and (12) Soldering and Inspection (Electronic).

PVRB. Currently contains research norms on ten different groups, none of which specifically references a deaf population.

Training. This is not required but is available to purchasers of any Valpar system. The training does not specifically address the needs of a deaf population unless this is requested by the purchaser. It should be noted that the Valpar Corporation has an annual training conference which has previously included considerations in use of the Valpar CWS with a deaf population.

Utility.

VCWS. As presented in D.E.A.F. (Watson, 1977), this system could be used with most deaf rehabilitation clients, especially in the initial phases of the evaluation process. It should be noted that attempts to modify VCWS No. 13, Money Handling, have proven extremely difficult for a hearing-impaired population. This work sample involves making change as a cashier, which requires starting from the total purchase price and counting the change up to the amount of money offered by the customer. While this is quite frequently a requirement of a cashier, this concept has proven extremely difficult for many deaf persons. It should also be noted that with the increase in the number of computerized cash registers, the cashier is no longer required to count the change back in this manner.

PVRB. This could be utilized with deaf mentally retarded persons or deaf persons of average intelligence but who have suffered severe educational, social, and cultural deprivation. All of the tasks are designed to solicit good client cooperation and participation through the built-in gamesmanship factor and attractive design of the battery.

Future directions. Currently Valpar Corporation plans to continue gathering normative data on hearing-impaired persons and will make this available as the data is generated.

Under development at Valpar is a new product entitled MESA. This is being designed as a pre-screening tool that utilizes a micro-computer. Comments from the developer indicate that this will allow a deaf person to participate in this process by indicating responses on a terminal keyboard. Some of the factors measured in this way are eye-hand coordination, color discrimination screening, and academic screening. The client responses are scored and tabulated as s/he goes through the process.

Comments. Loera (1977) points out the instructions of the Valpar can be changed into sign language "without significantly changing the content of information for a deaf individual who has average or above average communication skills". It is also pointed out that the manual permits the evaluator to demonstrate the work sample until the client demonstrates mastery. This is also true for the PVRB, as this has been designed at a more simplified level of instruction than the CWS series. The Valpar representatives indicated their experience shows that enhancing instructions through demonstrations or changing spoken word to sign language will not compromise the results.

VIII. **JASTAK ASSOCIATES, INC.**, has refined and is marketing the Wide Range Employability Sample Test (WREST). Ten independent work samples are used to assess mentally retarded and physically handicapped rehabilitation clients for a sheltered workshop.

Standardization/Administration. All of the work samples are administered orally in combination with demonstration from the evaluator. While the manual (Jastak, 1980) cautions the evaluator not to veer from the standardized instructions, it should be noted that the language is at a fairly non-technical level, which lends itself easily to translation into sign language. The client is not required to follow written instructions while taking the WREST.

Comparative information. No normative information is available concerning use of the WREST with the deaf population.

Training. There is no formal training required or available for purchasers of this system. The manual (Jastak, 1980) notes that the evaluator who is familiar with general testing procedures in evaluation should be able to master the skills necessary after a careful review of the manual. The evaluator is also directed to seek advice from Jastak Associates or other professionals who are competent with the WREST.

Utility. This system continues to be of use in the assessment of a mentally retarded deaf person, especially considering workshop placement, for evaluation units located in facilities not associated with a workshop.

Future directions. Jastak Associates currently has no plans for inclusion of deaf norms or modification of standardization procedures. However, it was pointed out there are currently some studies being done with regard to the Wide Range Interest and Opinion Test and its use with the deaf population. This test is also marketed by Jastak Associates.

Comments. Evaluator should consider carefully the use of this system due to the lack of face validity of work samples to many hearing-impaired persons. For other comments, the reader can refer to Sligar's (1977) review of the WREST.

IX. **McCarron-Dial Systems** is the current marketer of the McCarron-Dial Work Evaluation System (MDWES). Eight different instruments combining psychometric tests and behavioral observation rating forms are used in this system. This is not a work sample system but it does attempt to identify an individual's current and potential functioning levels with regard to vocational and living programs.

Standardization/Administration. The MDWES relies primarily upon oral instructions that are combined or supplemented with demonstrations or prompts. Factor 5, the Street Survival Skills Questionnaire (SSSQ) is designed to be administered orally but has been rewritten with a standardized approach utilizing American Sign Language. An example of this is the change of instructions from Volume 3, Tools (1979), which instructs the evaluator to say to the client, "Point to the pair of wire cutters". This has been changed in the SSSQ for the Deaf (McCarron & Stall, 1981) to sign: WIRE CUT (Make the CUT sign in the same space as the imaginary wire); then sign, WHICH USE? pause (express question through facial gesture).

Comparative information. The McCarron Assessment of Neuromuscular Development (MAND), Factor 3, contains normative information that was gathered at a residential school for the deaf on 16- to 20-year-old students. There are no deaf norms for any of the other factors nor for the entire system.

Training. This is available and required. Specific training in use of the system with a deaf population is available if requested by the purchaser. McCarron-Dial Systems also provides advanced training in a variety of areas, including specific disability groups, and would be willing to train in the area of deafness if there is a sufficient demand for this.

Utility. The MDWES could be quite helpful in the initial assessment part of an evaluation. It could aslo be useful with the mentally retarded or multiply handicapped deaf individual. Also, it was pointed out by McCarron and Ludlow (1981), the MDWES can be used to evaluate further the "secondary" dysfunctions often associated with sensori-neural deafness.

Future directions. These include continued refinement of standardization procedures for the system. There will also be more normative information gathered and disseminated.

Comments. The trainers for the system point out that they recommend use of the WAIS Performance I.Q. in determination of Factor I, Verbal-Cognitive. Factor 2, Sensory, uses the Bender Visual Motor Gestalt Test. The BVMGT can be administered through demonstration, and the Haptic Visual Discrimination Test, also part of Factor 2, can be administered through the use of a total communication approach without significant violation of the procedure. The Observational Emotional Inventory (OEI) and the Dial Behavior Rating Scale (BRS) are not affected as these are rating scales. The evaluator is cautioned to make sure that s/he is aware into which environment the client is placed for these ratings. This could skew the results. For example, if a manually communicating deaf client is placed in a sheltered workshop with non-signing staff, the adaptive level of the client could be affected. It is the opinion of the trainer that the system scores are valid, even with changes into sign language. This excepts the SSSQ because of the many language overlays in this particular instrument and lack of norms for this modification.

X. **VDARE SERVICE BUREAU** has developed and markets the Vocational Diagnosis and Assessment of Residual Employability (VDARE). This is not a work sample system but a process for the professional to organize client work history data to assist in the determination of the client's functional vocational assets and limitations. This process is based on the qualifications profile as found in the **DOT** and as used in job analysis. There are no testing devices, instruments, or work samples contained in this system and data input can be gathered from a variety of sources.

Standardization/Administration. This section does not apply in the same manner in which it has been used with the other systems. However, the evaluator utilizing this process is required to interview the client in order to gather background information. Of particular importance is the gathering of vocational information from the client. The evaluator should be especially aware that some deaf individuals, particularly minimal language skill level, will be unable to supply exact job titles but frequently are able to explain through gesture some job duties. It is then the evaluator's responsibility to determine the appropriate job title(s).

Comparative information. The data base used in the VDARE process relies primarily on the **DOT** and, as recommended in the manual (1979), job analysis from local industry. Therefore, in the determination of the client's vocational profile, s/he is compared with competitive standards in the prediction of future employability.

Training. This is available but not required for purchase of the system. VDARE

has put on workshops to train counselors working with the deaf and will supply these upon requests.

Utility. The VDARE process can be helpful to the evaluator in the process of assessing the deaf worker who is in need of a job change or other rehabilitation services. It can also be useful in looking at a person in terms of the impact of additional disabilities upon employment potential. The VDARE process also allows the evaluator to view the total vocational picture of the client as a worker and may increase the likelihood of securing non-traditional jobs for deaf persons. Probably the biggest drawback to this process would be its application and use with deaf persons who have not had a competitive employment history. To compensate for this, the evaluator may wish to use a profile considering clients' hobbies or workshop employment as a starting basis for determination of the clients' vocational profile. VDARE could also be a useful screening instrument.

Future directions. None specifically for deaf persons, but VDARE does plan to market software for computers to assist the evaluator in job search and job matching.

Comments. Quite frequently vocational rehabilitation of deaf persons should be called vocational habilitation of deaf persons. The VDARE process is designed to enhance the rehabilitation program of the participant through a logical order of data analysis by the professional.

THE USE OF CVES IN EVALUATION OF DEAF CLIENTS

All of the commercial systems can be and are used in the evaluation process. Used correctly, they contribute significantly to overall rehabilitation plan development. Depending on the type of client served, other programs available, and the expertise of the evaluator, each of the systems can be used during different phases of the process. As Table I shows, some systems are very useful in the initial screening of a client to determine which additional evaluation instruments may be necessary. Then, other instruments are selected for provision of occupational information, more specific observation of behaviors necessary to hold a job, or to discern other factors.

Some CVES samples have been utilized in an eclectic type approach for evaluation of specific jobs. Wells & Puckett (1979) used job analysis to develop an appropriate evaluation test battery, which included seven Valpar component work samples, as well as other psychometric tests and facility developed samples. The entire battery was to evaluate deaf persons for post office jobs. They conclude that this prescriptive type of evaluation can result in successful placement within local industry.

SUMMARY

As this analysis shows, there are only four systems that have addressed the need to standardize the administration procedures for a deaf population. It is inter-

Table 1

Factors Affecting the Use of Selected CVES with Deaf Persons

Phase of Evaluation	CVES	Uses with Deaf Clients
Initial Screening	CES	All clients
	TAP	All except physically handicapped
	PVRB	MLS clients
	WREST	Determine workshop placement
	MDWES	Clients with neurological impairments
	VDARE	Clients with work history
Occupational Information	Singer	High face validity
	TOWER	High face validity
	JEVS	Fair face validity
	VIEWS	Fair face validity
	SAVE	Fair face validity
	Valpar CWS (some)	Fair face validity
Behavioral Observations of Work Behaviors	All except CES, TAP, and VDARE	

esting to note that each company has taken a different approach; for example, the captioned filmstrips of the Singer, videotaped instructions from Valpar and Micro-TOWER, and written American Sign Language from MDWES.

The SSSQ adaptations states: "Examiners of this adaptation **must** be fluent in American Sign Language both receptively and expressively. Similarly, the deaf person being examined **must** also be fluent in American Sign Language receptively but not necessarily expressively." (Italics added.) While each system has a different utility and application to varying types of deaf persons, the use and application of these instructional modes should be followed and reported back to the field. The following table shows this, along with reviewer comments concerning the degree of difficulty involved with translation of instructions into sign language based upon use of the manual provided by marketer (see Table 2).

As discussed previously, there are pros and cons to generating specific disability group norms. It is interesting to note that of the two companies reporting normative information, both have gathered this on deaf residential high school students. Several of the systems contain competitive or industrial types of information through either employed worker norms or pre-determined time standard norms, such as MODAPS or MTM.

There were several areas of agreement from all of the marketers, which are summarized as follows:

1. All agreed to provide information concerning lists of facilities that have purchased the respective system and are using it with the hearing-impaired population.

2. All agreed that as information was gathered about the use of the respective system with the hearing-impaired population, they would share this with current consumers of the system.

3. Training specific to the use of the system with regard to the hearing-impaired population is offered upon request of the purchaser. This is not routinely covered in the initial training, but allowances for this can and are being made.

4. All agreed that it is a costly process to modify systems for use with the hearing-impaired or to collect data on systems for use with deaf persons, and future endeavors within this area would have to be considered carefully.

5. Input and recommendations from practitioners is welcomed.

One of the more prevalent future trends appears to be the use of the microcomputer. This will directly involve both the client, as in Valpar's MESA, and the professional, as in CES. The implications for generation of new, more accurate, and broader normative groups are tremendous. Additionally, as software programs are developed, the evaluator can be greatly aided in the data synthesis process. Examples could include client capabilities matching as planned by VDARE or assessment of specific (dis)ability groupings as programmed at CES.

Another possibility for future collection of normative data could include employed client norms. This has been addressed in a study of Philadelphia JEVS Work Samples (Berven & Maki, 1982). As part of their discussion it is stated that there seems to be "considerable value in developing employed norms." This area could be

Table 2

System	Standardization Available	Interpreting Difficulty	Comparative Information
CES	No	Minimal	Yes, for gradations of talking/hearing trait
JEVS	No	Minimal	No
VIEWS	No	Minimal	No
SAVE	No	Significant first phase, minimal for work samples	No
Singer	Captioned, 7 carousels	Minimal for these 7	No
TAP	No	Minimal	No
TOWER	No	Some	No
Micro-TOWER	Yes, videotapes	Minimal	No
VALPAR	Videotapes for 15 CWS	Minimal	Yes, residential HS students
PVRB	No	Minimal	No
WREST	No	Minimal, but the manual discourages	No
MDWES	Yes, for SSSQ No, for other factors	Minimal	Yes, for MAND No, for other factors
VDARE	No	Minimal	N/A

of use in deafness rehabilitation, as it would allow for data collection on deaf persons who have been successful. Of course, communication modes, training received, and other variables would have to be considered, but as a future area for study, this is well worth investigation.

CONCLUSION

It is clearly the responsibility of the evaluator to make the determination as to the appropriateness of instruments to be used in the assessment of the client. In development of the Individual Evaluation Plan (IEP), the evaluator is to select "appropriate adaptive assessment tools" (CARF, 1982) to minimize invalidation of the standardized procedure. McCray (1980) has developed "Suggested Guidelines for Evaluation Work Samples." Similar guidelines could be developed to evaluate work samples and other instruments used in facilities serving persons who are deaf.

The professional vocational evaluator needs to continue in the development of skills and competencies in the use of commercial evaluation systems and modification of these systems for use with deaf persons. This can be done by requesting the companies to address the issue of deafness, which they have indicated a willingness and capability to do. This should be in combination with university-based short-term training programs, which will take a different type of objective approach in training and utilization of the systems. The evaluator also has the responsibility to the client to continue development of communication skills. Now that the Commission on Certification of Work Adjustment and Vocational Evaluation Specialists is a reality, recommendations should be made to this commission for certifying vocational evaluation specialists in the area of deafness.

Within the general field of vocational evaluation there are still many critical issues (Dunn, Korn, and Andrew, 1976) to be decided. All of these have direct and relevant overlying implications when addressing the topic of vocational evaluation of deaf persons. Some of these issues are:

1. Standardization. As pointed out in the Vocational Evaluation Project (1975), in order for the evaluator to use situational tools, s/he must have a good basis of communication. There is a need to standardize the conceptual base of each work sample to ensure that the client understands why that particular task is being done, what type of information is conveyed to the client, and what type of instructions are given.

2. Studies need to be conducted in the area of performance of hearing-impaired persons in the Commercial Vocational Evaluation Systems. The very basic issue of whether there is a difference in performance between hearing impaired and hearing should be addressed, as well as further clarification about the use of each system with specific subgroups found within the deaf population.

3. Further work needs to be done by the CVES themselves that demonstrates to the field as to the degree of usefulness of the systems in the rehabilitation efforts of deaf persons.

4. There exists a continuing need for information exchange and sharing by practitioners utilizing these systems as to their positive and negative impact on evaluation of deaf persons.

ENDNOTES

1. Much of the information concerning updates on CVES standardization, norms, future directions, and some comments, was gathered from interviews with the following company representatives about their respective system(s):

   Bob Michener - Evaluation Systems, Inc.
   Fred Stabene - Vocational Research Institute
   Tom Cobb - S.A.V.E. Enterprises
   Don Berman - Singer Educational Division
   Ben Borden - Talent Assessment, Inc.
   Donna Fingerhut and Robert Schmitt - ICD Rehabilitation and Research Center
   Mike White - Valpar Corporation
   Gene McWaters - Jastak Associates, Inc.
   Victoria Mason - McCarron-Dial Systems
   Tim Fields - VDARE Service Bureaus

REFERENCES

Berven, N. & Marki, D. The concept of employed client norms: An application to Philadelphia JEVS work samples. Vocational Evaluation and Work Adjustment Bulletin, Spring 1982, 15(1), 22-38.

Botterbusch, K.F. A comparison of commercial vocational evaluation systems. Menomonie, Wisconsin: University of Wisconsin-Stout, Stout Vocational Rehabilitation Institute, Materials Development Center, June 1980.

Botterbusch, K.F. SAVE (Package B) - Systematic approach to vocational evaluation. Vocational Evaluation and Work Adjustment Bulletin, Summer 1982, 15(2), 72-74.

Commission on Accreditation of Rehabilitation Facilities. Standards manual for facilities serving people with disabilities. Tucson, Arizona: Author, 1982.

Danek, M. & Lawrence, R. The multiply disabled hearing-impaired client: Implications for rehabilitation practice. Journal of Rehabilitation of the Deaf, January 1981, 15(3), 1-9.

Deaf norms. Evaluators' Handbook, Instructions and Normative Data. 1978 Supplement. Tucson, Arizona: Valpar Corporation, 1978.

Dunn, D., Korn, T., & Andrew, J. (Eds.) Critical issues in vocational evaluation. Menomonie, Wisconsin: University of Wisconsin-Stout, Stout Vocational Rehabilitation Institute, Research and Training Center, October 1976.

Jastak, J. & S. Wide Range Employability Sample Test Manual, 1980 Edition. Wilmington, Delaware: Jastak Associates, Inc., 1980.

Loera, P. Vocational evaluation at a residential school for the deaf. Valpar-Spective, 1977, 2(3), 5-7.

Ludlow, G. & McGlasson, M. 1981 Texas VEWAA survey of preferred vocational evaluation systems. Vocational Evaluation and Work Adjustment Bulletin, Summer 1982, 15(2), 47-48.

McCarron, L. McCarron assessment of neuromuscular development. Dallas, Texas: Common Market Press, (2nd ed.), 1980.

McCarron, L. & Ludlow, G. Sensori-neural deafness and neuromuscular dysfunctions. Journal of Rehabilitation, January/February/March 1981, 59-62; 79.

McCarron, L. & Stall, C. Street survival skills questionnaire for the deaf (Research Grant #DHEW 16-56819/6-10). Texas Tech University. June 1981.

McCray, P. Competitive work sample norms and standards: Some considerations. Vocational Evaluation and Work Adjustment Bulletin, Fall 1979, 12(3), 24-26.

McCray, P. Suggested guidelines for evaluating work samples. Menomonie, Wisconsin: Materials Development Center, September 1980.

Manual for McCarron-Dial systems Vol 3, Tool recognition and use. Dallas, Texas: Common Market Press, 1979.

Manual for Pre-Vocational Readiness Battery (VALPAR 17). Tucson, Arizona: Valpar Corporation, 1978.

Manual for S.A.V.E. (Package A). Rome, Georgia: S.A.V.E. Enterprises, 1977.

Manuals for VALPAR Component Work Sample, (1-16). Tucson, Arizona: Valpar Corporation, 1974.

Manual, Vocational Diagnosis and Assessment of Residual Employability. Roswell, Georgia: VDARE Service Bureau, 1979.

Sanderson, R. The need for independent living skills for employment of severely handicapped deaf individuals. Independent Living Skills for Severely Handicapped Deaf People. July 1980, 4-7. (Monograph No. 5).

Schein, J.D., (Ed.) Education and rehabilitation of deaf persons with other disabilities. New York: Deafness Research and Training Center, New York University, 1974.

Shiels, J. Work samples and normative data: Are deaf norms really needed? Journal of Rehabilitation of the Deaf, July 1980, 14(1), 14-21.

Sink, J. & Field, T. Vocational Assessment Planning and Jobs. Athens, Georgia: VDARE Service Bureau, 1981.

Sligar, S. The use of commercial work samples with a hearing-impaired population. In Watson, D. (Ed.) Deaf evaluation and adjustment feasibility. Silver Spring, MD: National Association of the Deaf, 1977.

VIEWS, Evaluator's Handbook. Philadelphia: Vocational Research Institute, Jewish Employment and Vocational Service, 1977.

Vocational evaluation project final report (SRS Grant No. 12P-55958/3/02). Vocational Evaluation and Work Adjustment Bulletin. Special Edition: Vol 8, July 1975, Reprint 12, p. 60.

Watson, D. (Ed.) Deaf evaluation and adjustment feasibility. Silver Spring, MD: National Association of the Deaf, 1977.

Wells, R. Jr., & Puckett, F. Evaluating deaf clients for post office jobs. Vocational Evaluation and Work Adjustment Bulletin, Winter 1979, 12(4), 4-6.

Appendix A

Marketers of Commercial Vocational Evaluation Systems

Company	System
Evaluation Systems, Inc. 7788 Milwaukee Avenue Niles, Illinois 60648	Career Evaluation Series (CES)
Vocational Research Institute Jewish Employment and Vocational Service 1700 Sansom Street, 9th Floor Philadelphia, PA 19103	Jewish Employment and Vocational Service (JEVS) Vocational Information and Evaluation Work Samples (VIEWS)
S.A.V.E. Enterprises P.O. Box 5871 Rome, Georgia 30161	Systematic Approach to Vocational Evaluation (SAVE)
Singer Educational Division Career Systems 80 Commerce Drive Rochester, New York 14623	Singer
Talent Assessment, Inc. P.O. Box 5087 Jacksonville, Florida 32207	Talent Assessment Program (TAP)
ICD Rehabilitation and Research Center 340 East 24th Street New York, New York 10010	TOWER System Micro-TOWER
Valpar Corporation 3801 East 34th Street Tucson, Arizona 85713	Valpar Component Work Sample Series (VCWS) Pre-Vocational Readiness Battery (Valpar No. 17)
Jastak Associates, Inc. 1526 Gilpin Avenue Wilmington, Delaware 19806	Wide Range Employability Sample Test (WREST)
McCarron-Dial Systems P.O. Box 45628 Dallas, Texas 75245	McCarron-Dial Work Evaluation Systems (MDWES)
VDARE Service Bureau P.O. Box 55 Roswell, Georgia 30077	Vocational Diagnosis and Assessment of Residual Employability (VDARE)

5 VOCATIONAL EVALUATION OF SEVERELY DISABLED DEAF CLIENTS

FUNG-MING CHEUNG

Evaluation of low achieving multiply-handicapped deaf individuals requires different techniques and presents problems even to those experienced evaluators who have experience working with deaf people. A low achieving multiply-handicapped deaf person generally has minimal schooling, and no functional reading or writing skills. Communication is often limited to pantomime, gestures, and homemade signs. However, these as well as other disabled persons require and deserve a full assessment of their strengths and limitations if meaningful rehabilitation is to occur. This paper will begin with a discussion of the evaluation process and then present some practical techniques that are currently used to evaluate low achieving multiply-handicapped deaf clients at the Southwest Center for the Hearing-Impaired (SCHI).

Referral Information

The evaluation process starts prior to clients entering the program. The initial assessment involves reviewing and analyzing referral data such as (a) medical information (e.g., age at onset, etiology, previous and current physical problems or limitations), (b) audiological information (e.g., degree of hearing loss, language training, type of amplification), (c) ophthalmological information (e.g., visual problem, use of eye glasses), (d) work history (e.g., previous employment experiences, if any, training, skills, interests), (e) educational history (e.g., schools attended and highest grade completed, achievement records), (f) personal/social history (e.g., communication mode, hobbies, behavioral information), (g) previous testing and findings (e.g., evaluation report, psychological report, psychiatric evaluation, neurological examinations) and (h) reasons for evaluation services (Watson, 1977).

This information enables the evaluator to obtain a basic assessment of the client's current functioning level. Analyses of the information received at referral permits the evaluator to prepare himself/herself for working with the low achieving multiply-handicapped deaf person.

However, accurate client background information is not always easily obtained. Although it should be available from the referral source, many times the information is incomplete. This is particularly true of those deaf individuals who have been kept at home most of their lives and have had little or no contact with the outside world or people other than family members. Consequently, such individuals may have never received any kind of rehabilitation services, nor have any formal reports been generated. Secondly, client background data is often reported by persons unfamiliar with the handicap of deafness and thus the information may present an inaccurate picture of the individual.

Orientation

Orientation to the rehabilitation facility is an essential part of the evaluation process. This orientation provides the opportunity to observe the client in an unstructured, less threatening environment, as well as develop rapport and trust (Sligar & Culpepper, 1976). At the Southwest Center for the Hearing-Impaired, the orientation process is an ongoing one, but it can be divided into two parts:

1. Facility orientation. When the client actually enters the Center, a staff member (program manager or evaluator) will greet the new client personally. S/he will be given a comprehensive tour of the facility. Thoroughness is necessary because most of these low achieving deaf clients are unable to seek help or convey their basic needs. A "buddy system" is employed with incoming clients. This involves assigning a facility-experienced client to help the new deaf client get acclimated during the first few weeks of the program. This team approach provides immediate support to the new client while adjusting to the new environment. Additionally, this provides an opportunity for other deaf clients in the facility to develop feelings of responsibility and accomplishment.

2. Schedule/program orientation. An orientation group meets in the evaluation unit twice a week. During this time the counselor and the evaluator explain the purposes of evaluation and the program to the client. A rule book with pictorial demonstrations of the daily schedule, specific rules and regulations, safety measures, and facility services is discussed during the group. A picture board of staff members has been developed; this is used to acquaint new clients with the SCHI staff and their name signs. This group approach also allows the evaluator to observe how the client behaves in a group situation.

The orientation process may take several days to several weeks, depending on the individual. Some may be able to learn about their surroundings and schedules by following others. Others may require physical assistance in reporting to various activities. This initial observation provides a preliminary assessment of an individual's learning ability. It also aids the evaluator in developing the evaluation plan according to the person's level of functioning.

Initial Interview

Upon entering evaluation, an initial interview is conducted with the client in order to explain the process, purposes, and goals of evaluation. The interview is generally concrete and demonstrative in nature, such as physically showing the work stations, location of work samples, and pantomiming some work activities. Client reactions during this orientation provides the evaluator preliminary information from which to develop the initial evaluation. Generally, there are three objectives during this interview stage:

1. Communication assessment. Different levels of communication skills characterize SCHI low achieving multiply-handicapped deaf clients. Most of these individuals can be categorized into three different groups: (a) those who have no formal sign language system and no adequate gesture/mime system, (b) those who have no formal sign language system but have developed a gesture system ranging from an ability to express basic needs to an ability to express high level abstract concepts, and (c) those who have limited sign and/or gesture abilities.

Because these individuals do not use a standard method of communication, commercial tests are often inappropriate for use in assessment of their skills in this area. Through direct interaction during the initial interview, the evaluator can identify the client's basic expressive and receptive communication skills. However, an ongoing assessment can also be done in real life situations where the client is functioning. Areas to be observed and documented include: (a) the client's peer interactions within a structured classroom setting, (b) the client's responsiveness to communication, (c) the client's ability to internalize formal signs and idiomatic expressions, and (d) the client's ability to transfer signing skills learned in the structured setting to an outside non-structured environment. With this information the evaluator is able to establish realistic expectations of the client's abilities, so that further modifications in the instructional process can be made to fit the individual's needs.

2. Rapport establishment. The single most important aspect of the initial interview is the establishment of good rapport between the evaluator and the client (Lane, 1972). However, rapport establishment requires smooth and open communication and often these deaf clients have no sign language or minimal pantomime skills. The problem is further complicated due to the fact that they often have feelings of fear, anxiety and uncertainty because it is the first time away from home. Therefore, it is important to establish a sense of trust and rapport with the client immediately. In order to do so the evaluator should approach the client in a relaxed manner. If the evaluator is nervous or tense, most clients will be able to sense this and possibly withdraw from the evaluator. Positive body language such as smiling, head nodding, and touching are other means of communication that can be used most effectively with low achieving deaf clients. This non-verbal type of communication helps the client feel comfortable and thus facilitates rapport development and gaining of trust.

3. Observation. The initial interview also enables the evaluator to observe those client behaviors which serve as an important source for information. For example, the evaluator can quickly appraise the client's personal appearance, hygiene and self-care skills by noting body odor, clothing style, and hair care. The client's alertness to his/her surroundings can be assessed by observing his/her ability to locate the restroom, cafeteria, work area, and other areas. Attentiveness can be measured by observing the client's ability to maintain eye-contact and to tolerate

distraction. In addition to these observations, the evaluator should be alert to the possibility of secondary disabilities that are often undiagnosed. For example, it is not uncommon for the deaf client to have a visual impairment which can be easily identified by these behavioral signs: (a) failing to glance at another person's hand waving from the side, (b) failing to locate small objects that have been dropped, (c) stumbling over objects, and (d) bumping into people and furniture. Other mental or emotional problems can be detected through observing such behaviors as self-talking, self-signing, crazy talk, anxiety, depression, withdrawal, and a confused and disorganized approach to work tasks.

Observation should be done on a continuing basis and behaviors should be documented. If another disability is suspected, a referral should be made for further medical, ophthalmological, psychological or neurological assessment. For example, a person who needs glasses will probably function better after procurring the glasses than before.

Evaluation of Physical Abilities

Evaluation of physical abilities with low achieving deaf individuals, as with other disabled groups, includes evaluation of motor coordination skills, manual/dexterity skills, discrimination skills and visual ability. However, unlike working with other disabled individuals or deaf persons who have formal communication skills which enable them to understand abstract concepts, the evaluator may have to omit explaining objectives and purposes of various tests to some low achieving clients. Instead, the work instructions may need to be demonstrated or accomplished through the show-and-do approach (Sligar & Culpepper 1976). The following describes some of the tests and how they are used with deaf clients who have poor communication skills.

The Dvorine Color Vision Plate is used to assess color discrimination ability. However, the nomenclature test is sometimes not applicable to the low achieving deaf client who is unable to identify the names of colors either by signs or speech. This does not indicate color blindness but a lack of knowledge of color names. Therefore, this part of the test can be omitted and the evaluator should proceed to section one. For those clients who have no number recognition skills the evaluator should ask them to trace the numbers with their finger instead of calling off the numbers on section one. A similar procedure is used on the second section of the test if needed.

If obvious difficulties are observed with following instructions, or the validity of the test is suspect, additional tests should be administered. Vocational Information and Evaluation Work Sample #1 - Tile sorting, which includes a mixture of 792 tiles of eight different colors, can be used to measure the client's abilities to differentiate and match colors.

The Bender Visual Motor Gestalt Test may be administered at this time. In order to explain the test procedure to a client who has no previous test experience or language skills, the test can be broken down into structured steps which allows for a successful experience for the client. The evaluator can draw a square, a triangle, and a circle on a piece of 8½" by 11" paper and give this to the client. Then, the evaluator can point to the drawings and to the blank space underneath them and pantomime for the client to copy the drawings, continuing this procedure until the

client masters the skill of copying, then proceeding to the next step by providing another sheet of paper and showing the client the plate of Figure A of the **Bender Gestalt.**

Assessment of the client's motor and dexterity skills can be accomplished through administration of some simple work samples, such as Valpar #2 size discrimination, the Valpar whole body range of motion test, the Valpar eye-hand-foot coordination test, the nut/bolt/washer assembly from the JEVS, and the Purdue Pegboard. In administering these work samples, tasks can be demonstrated in a step-by-step procedure and physical prompting be given when needed. The following is an illustration of how to give Valpar's size discrimination work component to a low achieving deaf client: The evaluator picks up a nut from the tray, first tries to twist it onto a bolt that is too small and then on another one that is too big for the nut. While doing so, the evaluator also shakes the head to indicate the work is not correct. The evaluator next twists the same nut into a correct bolt and nods her head to indicate correct work. Then, the evaluator physically picks up the client's dominant hand, points to the practice section and pantomimes the twisting of nuts onto the bolts. If the client does not begin to pick up a nut, or if the nut is not twisted onto the bolt all the way, further demonstration and physical assistance may be required.

Observation is another technique to be used in assessing physical abilities. Upon entering the evaluation unit, the evaluator should observe the client's posture and general appearance for any noticeable abnormalities that are not recorded in the referral information. For example, observing the client walking up and down stairs and walking heel/toe can provide information on the client's balancing ability. Observation of the client's frequent dropping of materials may indicate a problem with fingering ability.

Physical capacity tests are administered as the first step of the evaluation process because most of the tests are basically mechanical and easy to learn through actual "hands-on" experience. This learning experience also provides a structured success which often will reduce the client's anxiety and nervousness in a testing situation.

Evaluation of Basic Skills

In order to obtain a baseline profile of the client, an assessment of the level of intelligence, academic achievement, interests, and skills is necessary. However, this evaluation process should not be started until good rapport has already been established between the evaluator and the client. This is because most of the low achieving hearing-impaired clients have experienced severe deprivation of social, educational, and cultural influences, and usually have no experience in taking tests or are easily frustrated by pencil/paper type of work. If they are given a battery of psychological and achievement tests immediately after their entry into evaluation, the usual results are frustration and feelings of failure, which hinder the establishment of an effective working relationship. However, after the completion of physical capacity assessment, the evaluator should have some knowledge of the client's mode of communication and ability to understand instructions. Thus, the evaluator will be able to select appropriate tests and techniques for the client. Assessment of basic skills usually involves the following three areas:

1. Academic skills assessment. One method of assessing the client's reading skill involves neatly printing the client's name on a sheet of paper and giving it to the client, observing the client's facial expressions and gestures to determine recognition. The evaluator then gives the client a pencil and points to the name to indicate that the client should write the same thing. If the client is able to recognize and write their name, the evaluator can proceed to test the client's letter-writing and recognition skills. Further reading testing can be accomplished by giving the client a simple job application and noting the ability to understand and fill out basic information, such as date of birth, sex, age, and address.

For testing of numerical skills, the evaluator picks up a handful of nuts or other small objects, places a nut in front of the client, and holds up one finger. The procedure is repeated with two and three nuts. The evaluator places the fourth nut but does not raise the finger. If the client raises four fingers, the evaluator then increases nuts one at a time until an error is made. In order to find out the client's ability to recognize written numbers, the evaluator can write one through ten on a piece of paper, skip some numbers randomly, then motion for the client to fill in the blanks as far as possible. This will indicate the client's maximum numerical functional level.

These exercises provide information regarding the client's past learning experiences and current academic level as in other methods of academic testing. However, these exercises prove to be more useful because they are concrete and demonstrative, requiring almost no language skills for comprehension. Also, the exercise starts with a simple, basic activity and becomes progressively more difficult, which allows structured success for the client. If the client is unable to perform any of these tasks, testing can be terminated or continued, depending on the client's frustration level. This decision should be done at the discretion of the evaluator.

2. Learning assessment. The term "learning assessment" as used in this paper is defined differently from the traditional concept of measuring a client's intellectual level or IQ. It refers to assessing how a client learns, i.e., through written instructions, oral comments, pictorial instructions, and demonstrations; how much supervision is needed to master the learning; and can the client retain the learning. This information is of significance for the evaluator in order to determine an individual's vocational development and training needs and should be included as part of the evaluation process. There are several techniques to assess a low achieving deaf person's learning ability. Some of them are discussed in the following:

a. Ability to learn language skills. With the deaf client who has no formal communication skills, the evaluator can teach a few simple nouns and iconic signs like "table", "chair", "eat", and "hair" on the first day of evaluation. Notation should be made with regard to number of times the evaluator demonstrates the signs before the client is able to replicate them successfully and the amount of aid required by the client. An hour later, the evaluator can point to the table and chair and note if the client is able to sign spontaneously. This reflects the client's short term retention ability. The evaluator can continue this teaching technique on a daily basis by gradually increasing the signs from concrete to more conceptually oriented.

b. Ability to learn daily routine. To assess a client's ability to perform routine tasks, the evaluator can demonstrate a cleaning job using task analysis procedures, observing and recording the number of

reminders and amount of supervision that is required before the client is able to perform the task thoroughly and independently on a daily basis. Observation of a client's ability to follow daily schedules also provides basic assessment in this area.

c. Ability to learn a new task. Basically, the most effective instructional techniques for clients who have minimal language skills are demonstration/modeling method and the "hands-on" method. Working with the low achieving deaf client, the evaluator can demonstrate the assigned task step by step and motion the client to model the performance after the evaluator. If the client fails to perform the task correctly, the evaluator can physically manipulate the client's fingers and hands until the desired behavior occurs. It is important for the evaluator to identify which instructional format is most compatible with the client's learning capacities. Thus, appropriate adaptations can be made to eliminate barriers that impede the client's performance.

3. Vocational interest assessment. In order to understand most commercially available interest tests a high language level and formal academic skills are required. These tests have proven to be of little or no validity when used with many low achieving deaf clients. Although some commercial, pictorial interest tests have proven beneficial, they usually require conceptual understanding, which is considered one of the weakest traits among many low achieving deaf client groups. An additional difficulty is the fact that most clients are unable to report their likes or dislikes due to lack of communication abilities. Even if the client does have some basic communication skills, the ability to identify vocational interests is unlikely, due to the lack of vocational experience and knowledge of the world of work. Therefore, the evaluator often discovers that the only means to assess the client's vocational interests is via observation. For example, the client's interest in dealing with "data", "people", or "things" can be evaluated through behavioral observations. If the client is able to mingle with peers and is willing to help workers during evaluation, "people" oriented jobs may be preferred. A job that relates to "things" is more preferable to those clients who enjoy working with their hands on tangible objects. The evaluator can assess a client's interest for sedentary or non-sedentary work by assigning the client a task that requires standing for one to two hours for completion, then observe the client's body language and facial expressions for indications of likes and dislikes. If the client becomes restless after working for a short period of time and chooses a chair to sit down, the evaluator can be alerted to the possibility that there is a low tolerance for non-sedentary work.

Although these observations do not directly provide information on specific job interests or interest cluster(s), they do provide a general profile regarding work situation, interests, and temperaments of individuals.

Evaluation of Job Readiness Skills

Most low achieving deaf individuals referred to SCHI have no previous work experience. They often do not know how to perform in a real work environment or have any experience with the demands of such an environment. To determine the individual's job readiness, a baseline profile of work behaviors is necessary.

There are numerous work behaviors but most of these can be categorized into ten areas. These behavior areas are: (a) attendance, (b) punctuality, (c) quality, (d) quantity, (e) supervisor relations, (f) co-worker relations, (g) work tolerance, (h) work flexibility, (i) equipment care, and (j) safety and rule compliance. These ten general categories can be broken down into component behaviors that are clearly defined and measurable. For example, the category of supervisor relations include behaviors such as paying attention to the instructor, asking questions for clarification, asking for the next assignment, asking for assistance and accepting criticism.

In order to assess the client's work habits, a behavioral assessment should be done. Information for a behavioral assessment may come from a wide variety of sources, including direct observation of the client in the evaluation unit, workshop, classroom, and dormitory. Additional information may be obtained from the client's peers, teachers, counselor, and other staff members of the facility. The purpose of behavioral assessment is to identify appropriate and maladaptive behaviors, and the frequency with which different behaviors occur in various situations. A time-sampling can be used in which the frequency of a behavior is recorded during short intervals at various times. This technique also facilitates collecting and monitoring information on a large number of people at one time (Makulas, 1978). Another important aspect of behavioral assessment is identification of external or internal stimuli that triggers the occurrence of behaviors. For example, the client's inattentiveness to task may be due to behaviors of looking around and talking with others. In order to restrict the occurrence of undesired behaviors, the evaluator can narrow the stimuli by setting up a work station in a more isolated situation.

Behavioral assessment is an important part of the evaluation process. It provides significant information regarding an individual's vocational strengths and limitations and thus facilitates the identification of adjustment needs. This process is particularly useful with the low achieving deaf client because it requires minimal language skills and relies primarily on objective, qualitative, and quantitative observations.

Evaluation of Independent Living Skills

Another important process of vocational evaluation is the assessment of independent living skills to determine the client's ability to handle day to day living situations. However, with a deaf individual who has minimal or no formal educational background, and who does not communicate via a formal sign language system, the evaluation process itself can be very difficult.

One approach being used frequently is direct observation of an individual in a variety of situations to generate reliable data. For example, basic functional skills such as grooming, care of clothing, housekeeping skills, table manners, and ability to follow directional commands, and other tasks can be assessed through behavioral observation. However, direct observation is often not applicable or adequate for assessment of life skill areas such as health and safety, recognition of universal signs and danger signals, and money skills, etc. In such situations, pictures and representative objects can be used to provide visual cues and illustrations to the client in order to facilitate communication and understanding. For example, showing the client a picture of a house on fire, and then observing reactions through facial expressions and body language can reflect the client's knowledge of handling common dangers. These materials have been developed by SCHI staff members and are reviewed periodically. In addition to homemade test materials, there are

some commercial tests such as the Pre-Vocational Readiness Battery of the Valpar Component Work Sample #17 and the Street Survival Skills Questionnaire of the McCarron-Dial System which are useful with individuals with low language comprehension skills.

In order to assess a low achieving deaf person's ability to solve daily living problems a hands-on method requiring little or no language or reading skills can be used. Problems and concepts can be presented to the client in a concrete and demonstrative manner. A step-by-step problem solving approach is also needed. Instead of assessing the client's ability to budget money, the evaluator begins with testing recognition of money value, money counting and money changing.

The evaluator should keep in mind that living independently requires vocabulary and functional academic skills. Therefore, communication skills, functional reading abilities and basic math concepts are important areas to consider in order to determine an individual's readiness to function independently.

Extended Vocational Evaluation

Many SCHI deaf clients have not had previous opportunities to learn appropriate vocational and social skills. They are not aware of the role of an adult worker; they may never have worked in a competitive situation and they may have numerous maladaptive behaviors. However, this does not mean that the client is not feasible for competitive employment or independent living. For a more valid and reliable assessment of the client's maximum potential an extended evaluation which ranges anywhere from one to three months is used.

After the clients complete the formal evaluation, which varies from two to three weeks, they are placed in a variety of learning situations including the Work Training Center and the Life Skills Center. During this time, a diagnostic teaching model is used in both Centers to teach the client work habits and to upgrade the client's functional educational level, communicative ability, and survival skills. At the same time, the client's ability to learn and retain information, to cooperate with supervisors and interact with peers, to comply with rules, and to exhibit basic self help skills are observed, documented and discussed by all staff members. This extended evaluation process allows the evaluator an opportunity to compare the client's performance after receiving preliminary adjustment services to what it was before and thus predict what it will be in the future. This approach also involves professionals from other disciplines and provides a more objective and accurate assessment of the client's true functioning level.

CONCLUSION

Can evaluation be done with the low achieving multiply-handicapped deaf person? The answer is yes, but appropriate adaptation of assessment tools and methods are necessary in order to evaluate the client's true capacities. However, the evaluation goals are somewhat different. Instead of assessing specific job skills and identifying specific vocational objectives, the evaluation should focus on the client's ability to learn new tasks and work habits. This evaluation process provides information

that helps to identify potential barriers to the client's progress towards independence and to select the types of services needed for the client to reach the maximum level of functioning.

Evaluation of these individuals usually requires an extended length of time and a multi-disciplinary approach. In addition to regular evaluation by the evaluator, these individuals should be placed in various learning situations where other professionals, such as counselors, work adjustment specialists, communication instructors, and other specialists can work with them individually to provide a more objective and reliable assessment of their potential. In other words, the evaluation process itself should involve the provision of preliminary adjustment services, such as training in sign language, reading, and writing. The evaluator should treat the adjustment process as a continuing spectrum of the entire evaluation process rather than the termination of evaluation.

Finally, more research needs to be done in using this practical evaluation approach with low achieving multiply-handicapped deaf clients in order to determine its validity, feasibility, and utility.

REFERENCES

Bevill, R.E., Vocational Evaluation of the Severely Handicapped Adult Deaf, in Stewart, L. (Ed.) Toward More Effective Rehabilitation Services for the Severely Handicapped Deaf Clients. Arkansas Rehabilitation and Research Training Center, Hot Springs, Arkansas, 1971.

Lane, T., The Initial Interview in Vocational Evaluation: Some Practical Consideration, Vocational Evaluation and Work Adjustment Bulletin, Vol. 5 #4, Dec., 1972, pp 14-19.

Levine, E.S., Psychological Evaluation of the Deaf Clients, Handbook of Measurement and Evaluation Rehabilitation, University Park Press, 1976.

Mikulas, W., Behavior Modification, Harper and Row, 1978.

Mills, D.L., Report from the Study Group on Vocational Evaluation and Work Adjustment Services in Vocational Rehabilitation, Material Development Center, University of Wisconsin, Stout, 1972.

McCray, P., Learning Assessment in Vocational Evaluation, Material Development Center, University of Wisconsin, Stout, 1979.

McCray, P., The Individual Evaluation Plan, Material Development Center, University of Wisconsin, Stout, 1978.

Ouedenfield, C. and Bartkin, N., Life-Style Analysis: A Method for Assessing the Deaf Client, Journal of Rehabilitation of the Deaf, Vol. 14, #2, October, 1980, pp 8-14.

Sligar, S., and Culpepper, S.T., Vocational Evaluation - Deafness, Journal of Rehabilitation of the Deaf, Vol. 13, #1, July, 1976, pp 1-8.

Vernon, McCay, Psychological Evaluation of the Severely Handicapped Deaf Client, in Stewart L. (Ed.) Toward More Effective Rehabilitation Services for the Severely Handicapped Deaf Clients, Arkansas Rehabilitation and Research Training Center, Hot Springs, Arkansas, 1971.

Watson, D. (Ed), Deaf Evaluation and Adjustment Feasibility: Guidelines for the Vocational Evaluation of Deaf Clients, Silver Spring, MD: National Association of the Deaf, 1977.

6 VOCATIONAL EVALUATION IN TECHNICAL-VOCATIONAL EDUCATION

DAVID BUCHKOSKI

Before discussing vocational evaluation services in the St. Paul Technical Vocational Institute (TVI), a brief overview of the total preparatory program will be provided. Because hearing-impaired students frequently need more than vocational evaluation services, many are enrolled in a three-month preparatory program. During this time, they attend Personal Management, Communication, and Math classes. The philosophy of the Preparatory Program is to help prepare the student for training and provide as much information as possible, which will aid them during training.

For example, the Communication and Math curriculums are directly related to activities found in the vocational evaluation lab. A student may enter the Preparatory Program with very poor Math skills, but during the prep program quarter (3-months), will need to demonstrate the ability to learn the required Math skills associated with a certain training area prior to a recommendation for enrollment in that specific area. Often the remedial Math instructor will recommend specific teaching techniques for individual students that are tailored to their learning styles. This information is passed on to the student's future Math and/or skill training instructors.

A large part of the communication instructor's time is devoted to teaching students vocabulary relating to his or her chosen major. Vocabulary lists include required terminology that would be needed for the first few months of a training program. This vocabulary-building process coincides with the efforts of the vocational evaluator while teaching the student fundamental skills for a specific vocational training area.

The staff for Personal Management and Health Seminar perform a dual service. They not only teach much needed information, but also provide valuable feedback to the counseling staff. Communication difficulties, work behaviors, and ability to

understand new information in a situation not related to training is helpful in establishing a training plan with a student.

The vocational evaluation services offered at St. Paul Technical Vocational Institute are designed to serve the needs of hearing-impaired students who exhibit a wide range of achievement levels, aptitudes, and interests. The emphasis of the program is to expose students to the training areas available to them through a practical "hands-on" experience. In addition, hearing-impaired students are provided with the opportunity to obtain information about the vocational and technical training areas offered at St. Paul T.V.I. and the 33 other postsecondary public institutions in the state of Minnesota. At St. Paul T.V.I., there are 42 career areas, in the 7 metro area TVI's, there are 182 career areas. To date, hearing-impaired students have matriculated in 89 career areas.

In order to provide a clearer understanding of the purpose and process of vocational evaluation, several definitions are presented from Watson (1977). "Vocational evaluation is a process designed to assess and predict work behavior and vocational potential, primarily through the application of practical, reality-based assessment techniques and procedures" (p. 25).

"Vocational (work) evaluation is a comprehensive process that systematically utilizes work, real or simulated, as the focal point for assessment and vocational exploration. The purpose of which is to assist individuals in vocational development. Vocational (work) evaluation incorporates medical, psychological, social, vocational, educational, cultural, and economic data in the attainment of the goals of the evaluation process" (Watson, 1977, p. 25).

"Vocational Evaluation is essentially a clinical process of getting to know another person and in which the client comes to know himself" (Watson, 1977, p. 25).

Psychometric testing is an additional tool used in the evaluation laboratory. This enables staff to obtain information about the student's vocational interests, achievement levels in mathematics, reading, vocabulary, and general aptitude. Achievement levels, which are measured to help develop educational plans, indicate that 82.4% of the students enrolled at T.V.I. are unable to demonstrate basic math skills involving the addition, subtraction, multiplication, and division of whole numbers, fractions, decimals, and percentages. Of 555 students tested, 78.2% had less than a 6th grade reading comprehension level.

According to the literature, many psychometric tests, specifically vocabulary and reading comprehension tests often do not accurately predict academic potential. This is important to remember when using achievement tests for the purpose of placement in a training area. These types of instruments often do not suggest appropriate techniques to use when teaching these individuals.

Psychometric tests should be used as a work evaluation tool to supplement and complement work samples and other evaluation techniques. For example, a psychometric test could be used in conjunction with a work sample that evaluates the psychomotor abilities required for a certain occupation, but does not address the more abstract and cognitive requirements for that job. For vocational training programs that demand a certain level of academic competence in order to successfully complete training, psychometric testing is desirable. An important factor to remember when using psychometric tests with hearing-impaired individuals is, if they are used alone, may preclude an individual from obtaining employment or rehabilitation services. Therefore, they should not be used independently to predict a student's success in a training or a rehabilitation program.

The use of work samples which provide the "hands-on" experience has been found to be an effective method of assessment for hearing-impaired students. Students not only seem to learn better, but also are more motivated during their evaluation experience.

Often, students with poor judgement skills and unrealistic occupational goals are referred for evaluation. Because the "hands-on" evaluation requires that the students do the work themselves, they are better able to obtain a more accurate picture of a training area, and judge whether that particular vocation is appropriate for them. This experience also provides students with knowledge about themselves as well as information which is used in counseling sessions by vocational counselors. Because a counselor will have access to the evaluation results pertaining to a student's overall functioning ability, he or she is less likely to be fooled by a "nice" student, who presents himself or herself well during a counseling session, but does not perform well on work related activities.

Another advantage of the evaluation program is that it provides students with the opportunity to explore various occupational areas in a work situation that is not production oriented. This avoids student frustration and possible rejection of a potential training area if failure is experienced during initial contact.

Even though a vocational evaluation program should not be expected to provide work adjustment training, it is often a by-product of the experience. In some instances inappropriate behaviors continue after a student completes the evaluation program. The standard procedure is to inform the counselor and future instructional staff who in turn develop individual plans in order to help the student modify these behaviors.

A basic assumption made by the evaluation program is: students who make informed decisions about training areas are generally more successful in training. Some reasons for this assumption are: 1) The chances of a student staying in the program are greater because of the experience gained during the evaluation. Because the student has a better idea of the training requirements he or she is less likely to change majors thereby saving the student and school much time and expense. 2) Because the student does possess basic information, as well as the fundamental skills required by his or her program, he/she will be more likely to have a positive initial impression of the class. 3) If support services are needed they are often anticipated and are initiated when the student's training begins. Examples of such support services include notetaking, tutoring, sign language classes, and these services have been strengthened in recent years.

If work sample activities are to be valid, it is important that they directly relate to a specific job in a training area. For example, a student who is interested in exploring Metal Working or Machine Tool Process should work on the same type of machines during evaluation and exploration, as they would during training. Before a person can operate a metal lathe, they must understand how to measure and use various measuring instruments such as a steel rule, micrometer, and a vernier caliper. How a student functions in these evaluation situations, because they relate so closely to actual training, will help determine whether that student has the necessary skills and aptitudes to successfully participate in a particular program. Although evaluation and exploration services should not be designed with the intention of conducting formal skills training, it often does occur.

Many work samples used to evaluate potential for drafting have face validity. However, they lack content validity and do not provide enough depth and variety to present the field of drafting in its entirety. The person sees a job that provides

clean working conditions and a high salary, but does not realize that advanced math skills are necessary to suceed in drafting. Having a person draw a few lines on paper and using an architect's scale is not sufficient to predict potential for a highly technical area.

Many professionals in the field of vocational evaluation support the philosophy of developing work samples that relate to a specific job or training area. However, this most important rule is seldom practiced. The majority of the evaluation programs use work samples that do not provide the student or rehabilitation client enough data to make an informed choice about an occupation.

Many commercial systems on the market today provide a good service but, do not offer adequate technical information about certain jobs. The person's abstract and cognitive skills are frequently not assessed, because the work sample only measures psychomotor skills. Even though psychometric tests assess some of these functions, most psychometrics do not relate to specific jobs, and thus, do not provide the individual with the least restrictive assessment process. In the highly technical field of electronics, for example, a person may do all the hand skills on or near a competitive level, and may have basic math skills. But, when approached with more advanced math concepts and the theory involved in understanding basic electronics, they may feel overwhelmed and reject that job cluster.

Because of the nature of the St. Paul T.V.I. Program, work samples are widely used. This does not claim that work samples provide all of the answers. However, without their use many students would not be provided the opportunity to demonstrate the potential to succeed in training areas with high academic standards. Advantages of work samples include:

1. Work samples are the closest approximation to the reality of work requirements associated with specific jobs.

2. Many occupational training areas can be explored by an individual in one location.

3. Work sample activities can be made identical to those activities found in the training area.

4. Work sample assessment procedures not only provide for skill assessment, also for assessment of aspects of the client's personality, interest, and attitude toward a job.

5. Generally, hearing-impaired students respond more naturally to work related tasks rather than abstract tasks.

6. Work samples are structured in a way that minimizes cultural, educational and language barriers in the assessment of vocational potential, because they are "hands-on" in nature.

7. Training area instructional staff are more receptive to information from work sample performance assessments than to predictions based on other sources.

Because of these stated advantages, a person responsible for vocational evaluation services for hearing-impaired students must be aware that the development of a vocational evaluation lab is an on-going process.

One problem with recommending the use of work samples in evaluating hearing-impaired individuals is that work samples which can be effectively used with this group of people are not widely available. Hundreds of work samples have been developed in various types of facilities throughout the country. However, information relevant to these work samples is not being disseminated. If stronger vocational evaluation methods are to be utilized, this problem must be addressed.

Vocational evaluators and other individuals responsible for providing vocational evaluation need to be knowledgeable in how to select and use aptitude test batteries, work sample systems, and how to develop work samples that can be used with hearing-impaired individuals. Even though many test batteries and work sample systems have been available for several decades, their predictive validity is, at best, questionable. The person responsible for the development of a vocational evaluation program must consider individual needs, and the employment and training opportunities available.

In addition to psychometric and work sample assessment, vocational training tryouts have been found to be an effective tool with hearing-impaired students. An evaluator, while knowledgeable about job-skill requirements, cannot be skilled in all training areas. Also, space constraints may prohibit work samples in certain occupational areas; for example, it is difficult to simulate the heights involved in some forms of construction work in a work sample situation.

A student's eligibility for vocational training is based on the student's performance in the vocational assessment program or their performance during a training tryout. This is where a student is placed in a selected vocational training program for a period lasting from one to three weeks, and he/she will take part in the normal learning activities of that training program. This gives the vocational instructor, who then acts as a vocational evaluator, an opportunity to see if the student has potential for training in this particular program. The vocational program instructor is under no obligation to enroll the student following the training tryout, but does have the responsibility to report as objectively as possible the student's feasibility for training in that specific area. Any specific problems or assets will be reported by the instructor to the vocational assessment center through a brief report. At the end of the student's training tryout, results are compared against the work sample results and other relative data that has been generated throughout the vocational assessment process.

Through the process of vocational training tryouts, the student becomes more aware of the vocational training program requirements of a particular occupational area and can determine more realistically whether he or she has the aptitude and interest for a particular vocational training program. The training tryout is also of value to vocational instructors, for it provides them with experience in working with hearing-impaired students. Again, because the training tryout uses the "hands-on" approach, a more effective method of vocational assessment for hearing-impaired students, these individuals are able to obtain the same benefits that work sample testing provides.

SUMMARY

The vocational evaluation of hearing-impaired persons can effectively be accomplished through the use of psychometric tests which include achievement, interest, and aptitude tests, work samples, and training tryouts. It appears that, to date, there is no one evaluation system or work sample battery that can be used as a "do all" in evaluating hearing-impaired individuals. In fact, it is highly recommended that vocational evaluators and supervisors responsible for evaluation programs obtain work samples that have been developed for hearing-impaired students. A challenge to the field of deafness and vocational evaluation is to seek out already developed work samples and promote better dissemination of information about those identified as effective for use with hearing-impaired persons.

Because many programs have unique needs due to their geographic area and job markets, professionals in these areas must be trained in the development of "home-made" work samples. This is important not only to assure validity and reliability in work sample assessment but, it is also the most economical method of establishing a strong evaluation program. This is especially true when the goal of an evaluation program is to evaluate individuals for vocational-technical training areas. And, the trend for jobs appears to be getting more technical in nature. A program that provides vocational evaluation services should:

1. Identify vocational training or rehabilitation potential.
2. Identify vocational and educational assets and limitations.
3. Identify specific problems interferring with training or rehabilitation.
4. Provide information to support persons and clients which will aid in making accurate career choices.

CONCLUSION

The unique characteristic of vocational evaluators with hearing-impaired individuals is the requirement for skill in special communication methods as well as an understanding of deafness. In addition, modifying administration procedures of diagnostic instruments, established assessment techniques, and methodologies is necessary. However, the goals and objectives of vocational evaluation for hearing-impaired people remain the same as with other client groups.

TVI staff and faculty are currently trying to determine if entering students in 1982 are different from entering students in 1970, and 1975. To date, it has been ascertained that students entering in 1982 have the same language problems, levels of academic preparedness, coping skills, communication skills, and career awareness as the students who were entering T.V.I. in 1970, and 1975. What has changed over the years is the recognition that postsecondary education, the need for skill development and acquisition of work skills, as well as the need for continuing education, and the increasing demand for quality support services are all of importance.

REFERENCES

A Task Force Report for the Minnesota Division of Vocational Technical Education, Special Needs Unit. The Role of Vocational Assessment in Vocational Technical Education in Minnesota. September, 1979.

Botterbusch, Karl F., Ph.D. A Guide to Job Site Evaluation. Menomonie, Wisconsin: University of Wisconsin-Stout, Stout Vocational Rehabilitation Institute, Materials Development Center, 1978.

Pruitt, W.A. Vocational (Work) Evaluation, Walt Pruitt Associates, Menomonie, Wisconsin, 1977.

Vocational Evaluation Project Trial Report, Materials Development Center, Stout Vocational Rehabilitation Institute, University of Wisconsin-Stout, July, 1975.

Watson, D. Deaf Evaluation and Adjustment Feasibility, Silver Spring, MD: National Association of the Deaf, 1977.

7 CAREER ASSESSMENT AND ADVISEMENT OF THE TECHNICAL COLLEGE STUDENT

JAMES J. DECARO
AND
ANN H. ARESON

A CONCEPTUAL FRAMEWORK

An occupation represents a point on the temporal continuum of an individual's career. It is, therefore, appropriate to discuss occupations within the context of career development. For example, a person pursuing a career in the rehabilitation profession can be offered and does move through a variety of occupations: VR Counselor, Program Administrator, university faculty member and the like. For purposes of this discussion a simple six stage career development model will be used (Figure 1). The first four stages of the model are the stages in the Comprehensive Career Education Matrix (CCEM), a model of career development supported by the U.S. Office of Career Education and developed by the Ohio State University. The stages of the CCEM (figure 1) are defined as follows:

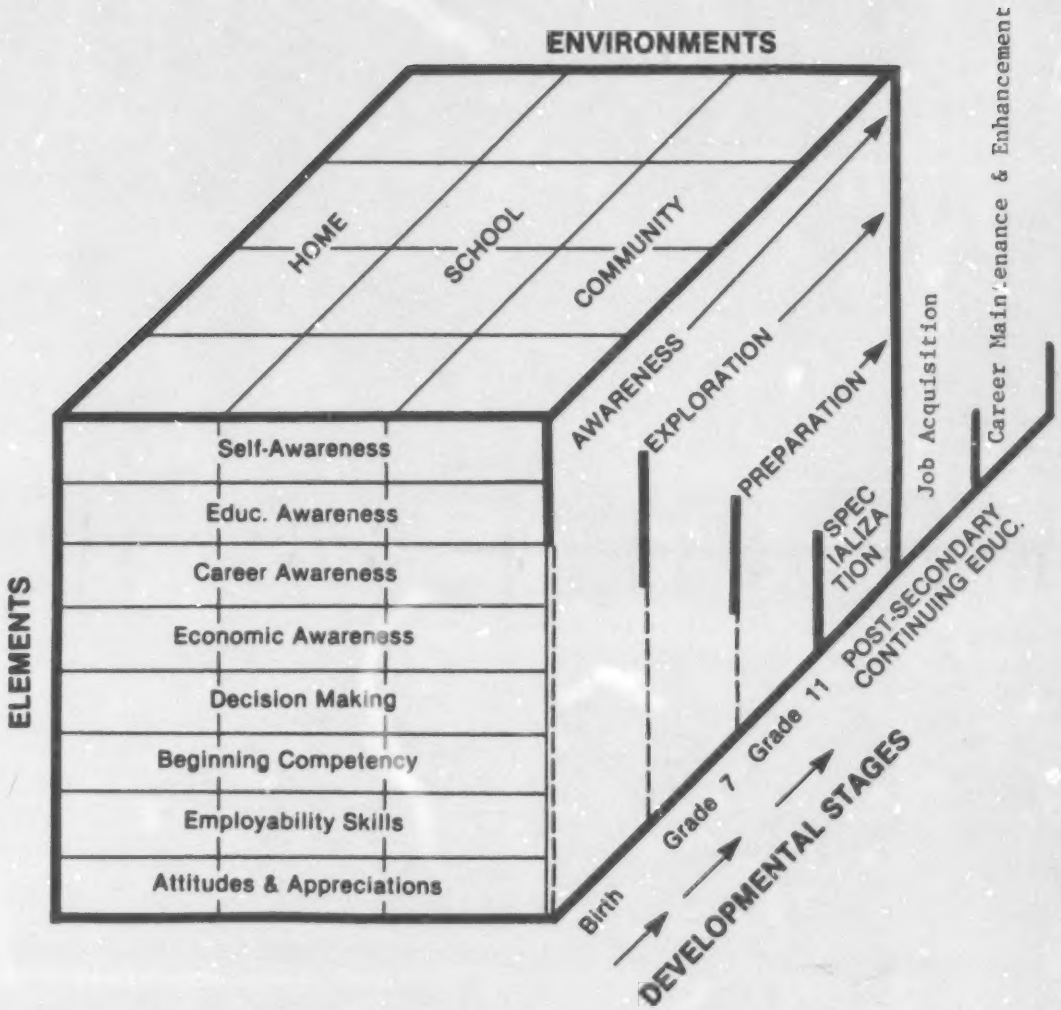
a. the awareness stage - the passive compiling and integrating of career related information and experiences;

b. the exploration stage - the testing and manipulating of career concepts and experiences;

c. the preparation stage - the broad development of career related entry level skills;

d. the specialization stage - the development of specific career skills within a narrow area of concentration.

Figure 1. The CCEM*



* Developed by the Ohio State University and modified by Galloway (1978).

The CCEM has eight elements of career education: self awareness, career awareness, educational awareness, economic awareness, decision-making, beginning competency, employment skills, and attitudes and appreciation. The reader is referred to Lang and Stinson (1982) who have done an excellent job of detailing the eight elements. These elements are learned as a person progresses through the four stages (awareness, exploration, preparation, and specialization) via experiences in three environments: home, school, and community. Upon exiting secondary or postsecondary education/training, an individual will either actively attempt to acquire employment or leave the labor force. This suggests a fifth stage of career development: **the job acquisition stage**. Once employment has been secured, an individual must engage in some form of **career maintenance or enhancement** in order to succeed in the position and to move horizontally or vertically along some career path. A person entering the work force must be prepared to maintain or enhance certain attitudes, knowledge or competencies in order to be mobile in a rapidly changing technological society.

If career development occurs over some period of time along the continuum presented, career assessment and advising must be viewed more as a continuing process rather than as a one time 'test them and tell them' psychometric exercise. Career assessment and advising should be directed at assisting clients in the formulation of career and work goals on the basis of their own interest, skills and knowledge. This contrast with the 'diagnostic - prescriptive' approach which consists of providing clients with a series of diagnostic exercises in which their skills, capabilities and disabilities are assessed and then they are told the type of employment, work environment or career area for which they are best suited. In effect, the 'diagnostic - prescriptive' approach places the client as a passive partner in developing career plans. Interest and aptitude inventories certainly have a role to play in a career assessment and advising function. It is suggested that these are merely tools to facilitate a positive and reciprocal exchange of ideas and prescriptions between an assessor/advisor and an advisee.

This paper will provide some empirical data that describe the level of career development of students entering the National Technical Institute for the Deaf (NTID). Further, four processes which need to be assessed and addressed in the rehabilitation and training of deaf people will be presented. Finally, some practical applications that have been successfully employed at the National Technical Institute for the Deaf will be discussed.

SOME EMPIRICAL DATA

Lang and Stinson (1982) report some very interesting data regarding the levels of self, educational, career and economic awareness for students entering NTID. Their data are very helpful in understanding the level of competency of students, in four of the eight elements of the CCEM, at a time when they are expected to make decisions regarding career specialization. With regard to **self awareness** students were asked three related questions: what excited them most about college; what worried them about being at NTID; what they expected would happen in their initial period at NTID. Significantly more students indicated social than academic aspects of college as being exciting. Students were most concerned about selecting a career and being successful academically. Less frequently, students expressed concerns about social relationships. Of the 20 students questioned, only three made statements indicating that they expected to acquire additional insights about their personal values in college. The responses given by students indicated that they were not aware that

college could be a place for personal growth as well as academic growth and career development.

With regard to **educational awareness**, Lang and Stinson (1982) found that students had some awareness of the role college plays in preparing to assume various work related roles. Students, clearly, expected college to provide appropriate educational experiences in preparation for a career. It appears that most of the students had identified a career and were aware of the importance of college to that career. Students were not, however, able to articulate how the characteristics of a career area coincided with their own values, interests and skills. This suggests that there is a need for **career awareness**. Finally, Lang and Stinson found it striking that students rarely mentioned the role of income in relation to life style, thus suggesting a naivete with regard to **economic awareness**.

Additional evidence has been collected at NTID that indicates that students entering NTID are not adequately aware of careers and are not yet prepared to make career decisions regarding specialization, i.e., select a major. For example, in 1977 (Areson), 55% of the students choosing majors at NTID were judged by faculty and staff, with whom they worked, as not prepared to make sound career decisions. White (1978) reported that 60% of the students who exited the NTID Summer Vestibule Program were unprepared to make career choices in the form of selecting a major. DiLorenzo and Welsh (1981) report that 31% of all students admitted to NTID from 1968 to 1979 changed their majors at least once. Of those students who changed majors, 52% changed to totally new career areas. DiLorenzo concluded that "...many students upon entering NTID are not ready to make a career choice..." in the form of selecting a major (p. 15).

In the summer of 1979, efforts were made to isolate a series of student characteristics that appeared to contribute to the problems cited above (Areson & DeCaro, 1981). Some 150 faculty members were involved in the process of identifying these characteristics. There were five student related statements that emerged during the process:

1. students appear to have a limited knowledge base and frequently have erroneous preconceived notions regarding careers and majors;
2. students appear to have a limited knowledge of self (e.g., strengths and weaknesses regarding career clusters, value systems, interests);
3. students appear to use unsophisticated processes for decision-making;
4. students appear to lack a repertoire of coping skills;
5. students appear to possess an inadequate knowledge base regarding cultures.

The reader is referred to the appendix for a more detailed breakdown of these five statements (see Appendix A).

PROCESSES NEEDING TO BE ADDRESSED AND ASSESSED

As a result of the needs assessment and subsequent literature reviews, four major processes in which students appeared to have deficiencies were identified:

1. managing and coping with conflict;
2. decision-making;
3. reflection;
4. studying.

Managing and Coping with Conflict

The environment of work or postsecondary education is significantly different from that to which most young people are accustomed. Even those who have attended the most career oriented of high schools find the transition to work or the university setting to be a formidable challenge. Such a challenge is even more formidable for hearing-impaired students who may be, for the first time, in an educational or work setting where their peers are predominately hearing. One antecedent for success is the ability to **manage or cope with the conflicts inherent in the transition from the pre-college environment to the college or work environment.** The strategies which can be used in the resolution of such conflict are similar to those that have been isolated for persons making the transition from one culture to another: adherence, substitution, addition, synthesis, and creation (Wasilewski & Mitchell, 1980). Similarly, there are general social competencies, e.g. role-taking, knowledge of alternative strategies and the appropriate use of alternative strategies (Weinstein, 1969), which can be helpful in resolving the conflicts in such a transition. These conflicts are often related to differences in attitudes, patterns of thought, social organization, roles and role perceptions, language, use and organization of space, time conceptualization and non-verbal expression (Samovar & Porter, 1976). That is, there are knowledge and skill components to managing and coping in a cross cultural 'type' setting.

An individual preparing to enter such a cross cultural 'type' of setting can be assisted through simulation and role playing that approximate experiences to be encountered. Such activities not only provide the hearing-impaired individual an opportunity for self assessment but also provide the assessor the opportunity to give constructive and positive feedback to the individual. It also offers the assessor an opportunity to facilitate clients' reflection upon their strengths, preferences and capabilities.

Decision-Making

Steve (1980) has suggested reasons, well supported in the literature, why an individual does not succeed in a decision-making situation:

1. individuals can fail because they lack the prerequisite skills to search out, recognize and use relevant information. This is best described by Gagne's (1968) theory of hierarchies of learning and could be termed the 'learning deficit explanation'.

2. individuals may fail because their information processing capabilities are taxed beyond their limits. Steve refers to this as the 'biological limitation explanation' which has been described by Simon (1976).

3. poor decision-making involves the conflict individuals feel in decision situations with important consequences. Steve refers to this as the 'decisional conflict explanation' best described by the Janis and Mann (1977) model.

In order to be successful at school or work, an individual must be able to function in many situations under varying risk, informational and time constraints. Most, if not all, of these situations require an individual to make decisions of varying degrees of importance.

Steve (1980) recommends that certain environmental modifications regarding information and time can be made to foster quality decision-making. He also identifies certain considerations internal to the decision maker, regarding risk, which must be addressed.

With respect to information, Steve recommends that, to facilitate career decision-making, it is necessary to consider: type of information required in the decision, the availability of that information, the presentation form of the information is accessible at the time the decision is made. Three principles can be used in determining the career decision information presented to the decision maker:

1. the information must be useful or related to the career decision at hand;

2. the information must be available to students in an economic fashion relatively free of distractor information;

3. the information must be accessible to the student at the time the decision is being made.

In addition, it is important to develop information search, recognition and use skills because:

1. such skills are generalizable to new decision situations;

2. the necessary information for most decisions is almost never neatly presented to a decision maker.

In addition to time and information, which can be externally controlled, there are perceptions and beliefs internal to the decision maker that affect the quality of the decision processes. These perceptions relate to the risk in continuing a current course of action, the risk involved in changing a course of action, and the belief that a better solution can be found. These perceptions must be clarified by the individual making a decision and brought into conjunction with 'reality'. In the articulation, clarification and bringing into conjunction of perceptions and 'realities', there is a need for intensive human interaction. The individual involved in decision-making should interact with a person or persons who can objectively

facilitate reflection upon perceptions of risk and the belief in the existence of potential solutions. Such a role can be played by counselors, mentors (Hawkins, 1980), peers (Osguthorpe, 1980) or teachers. The concern is not so much who is the facilitator but rather that the facilitation can be demonstrated to be occurring systematically.

Reflection

Dowaliby and Pagano (1981) have pointed out that a person enters a decision situation with a multitude of previous experiences. Some of these experiences share characteristics with the current decision situation. In order to negotiate a new situation, the decision maker must first isolate the characteristics of past experiences which are shared with current circumstances. Based on the past experiences and the current circumstances, the person will have certain expectations regarding the chance of success in meeting the challenges of the new situation. The expectation will influence the amount of effort the individual is willing to expend. This leads to action and an outcome along a success continuum. The ability of the decision makers to accurately ascribe the causes of outcomes will depend upon:

1. correct analysis of the decision task;
2. accurate perception of their own resources relative to the decision task;
3. adequate expenditure of effort.

In order to grow, individuals must be able to identify how they contributed to the resolution of a decision conflict. They must also store this information as part of their experience base (Athey, 1980). The more clients engage in the process just described and the greater the range of experiences, the greater the probability that, faced with a new situation, they will be able to identify general characteristics shared with prior experiences. They can then apply what they learned from previous experiences to the resolution of the situations. It is, therefore, necessary to assess and develop hearing-impaired clients' abilities to:

1. reflect upon past experiences and determine which of those experiences are related to a decision situation at hand;
2. isolate the characteristics of past experiences that are relevant to that decision situation;
3. project expectations regarding success and willingness to expend effort;
4. accurately assess their own resources relative to the task;
5. adequately expend effort (take some action) in accomplishing the task.

Here again there is a need for intensive interaction between a decision maker and a facilitator. Such interaction needs to be client-centered (Hawkins, 1981), i.e., the primary objective of the interaction is development, and the facilitator must be flexible in order to meet the individual's needs as a developing human being.

Several reviews of the literature (Athey, 1980; Belenky, 1980; Dansereau, 1980; Dowaliby & Pagano, 1981; Kraft, 1980; Steve, 1980; Whitaker, 1980) have indicated the need to assist students in identifying the relationship between characteristics

of previous experiences and those of current experiences. Focusing upon the affective and cognitive outcomes of prior experiences can help to establish a foundation for addressing new experiences.

Studying

Whether entering an institution of higher education or maintaining a career, individuals are expected to be prepared to learn independently. However, data indicate that students enrolling at NTID are weak in independent learning skills. For example, Hanner et al. (1971) listed a series of "observations on which there was substantial agreement among instructors about the deaf students" (p.11). One such observation was that students are "not fully aware of the effort and learning strategies required to be successful in studies at the postsecondary level" (p.12). This condition has remained substantially unchanged--a needs assessment conducted with faculty in 1979 (see Appendix A) uncovered essentially the same concerns. A critical aspect of independent learning is studying.

Willingness to study is dependent upon students' perceiving a need for studying in order to achieve their goals. The previously cited Lang and Stinson study (1982) indicated that the reason most commonly identified by the students for coming to NTID was "social" with "academic reasons" being cited second--the difference between the two was statistically significant. Further, they found that entering students felt that attending college was of real value for their future but were not able to articulate their career goals very well. Students may be willing to study but may consider studying secondary to socialization. Anecdotal information collected from career counselors, faculty and staff supports this contention.

When students' willingness to study is in question, they must first know what study efforts are needed to succeed at college and must compare this with their own expectations. Students must compare the study effort and skills deemed necessary for college success with their own expectations regarding study, academics, and socializing. The comparison is likely to point out a discrepancy. Students may not comprehend the meaning of the discrepancy since they most likely have not had to demonstrate the study behaviors previously. It is necessary for students to have an opportunity to test the implications of discrepancies identified.

Students may be willing to expend effort in studying but may lack certain study skills. For example, students may not possess the skills to manage their schedules and prioritize competing social and academic time demands. In addition, students may not possess adequate skills at identifying and understanding relationships in what they study, selecting the important material from what they study and cognitively reorganizing the materials into a personalized schema (Long, Hein & Coggiola, 1978).

Dansereau et al. (1979) describe a series of six primary learning strategies: mood setting, understanding, recall, digesting, expanding and reviewing. They also identified a series of support strategies for optimizing the internal psychological environment of the learner: goal setting and scheduling, concentration management, monitoring and diagnosing. A learning strategy system, composed of instruction in these primary and secondary strategies, was developed and used with college-age learners. The system proved to be effective in enhancing the behaviors and attitudes of participants (Dansereau et al., 1979). Dansereau (1980) suggests that many learners could benefit from such skills and strategy training. He recommends that "the skills and strategy programs should be run in parallel with regular content courses" (p.88).

SOME PRACTICAL APPLICATIONS

While the four processes addressed in the previous section may be theoretically appealing to the reader, there may be some reservations about the practicability of applying assessment and advising strategies related to these processes. In this section, some simple yet effective strategies that have been successfully applied at the National Technical Institute for the Deaf will be presented.

Career Planning Seminars

At NTID, new students are engaged in an extensive career exploration and decision-making program which centers on career planning seminars (CPS), 'sampling' the various technical majors and assessment of skills, aptitudes and interests related to career planning.

The key to the success of the program is the extent to which students have an opportunity to process the experience through discussion with CPS leaders (all of whom are counselors) and other professionals in the environment. The process is one of continuous self-assessment and feedback, in which the students try to analyze and interpret - with the assistance of a professional - the information they gather about themselves, career options and the college environment. The seminars meet as a group of 12 to 15 students with a facilitator/counselor for approximately 20 hours, one and one-half hours per session over a 5-week period. The students also meet individually with their CPS facilitator to discuss and interpret the results of tests administered during the program.

Some counselors have supplemented the seminars by using journals in which students write on specific subjects and receive written feedback from the CPS facilitator. The journal keeping has proven to be difficult for most students at first, and interaction with a journal requires a commitment of time and thought on the part of both the student and the counselor; but it is an excellent vehicle for students to begin to personalize their career exploration experience and to engage in self-assessment. Because writing is a skill at which few hearing-impaired students excel, the journal also supports the critical thinking and organization skills which underlie effective communication.

A rehabilitation counselor could facilitate similar career exploration experiences with clients. Over a two year period, for example, the counselor could meet with a small group of clients for an hour per week to share and discuss work sampling experiences, interests and aptitudes, career plans for clients or career-related topics (e.g., work habits, appropriate behavior with co-workers, supervisors and supervisees, and job applications).

Tools such as journals, aptitude and interest tests, and videotaped job interview simulations can supplement the basic group discussion process. The critical factor is that the career exploration and career planning experiences must be made meaningful through discussion with an adult and with peers and through the reflection which precedes and follows such discussion. This approach should enable clients to become active participants in career assessment, advising and decision-making.

Career Sampling Experience

One of the most effective ways of assessing and assisting students in processing, decision-making and coping is to place them in situations which approximate those they will encounter in the future. Such experiences are very useful in providing both an advisor and advisee the opportunity to bring into conjunction an advisee's perceptions and expectations, and the realities of a situation.

Providing students with an opportunity for 'hands on' experiences in a variety of career areas is one method of exposing students to situations which require coping, decision-making and processing. A variety of 'hands on'experiences in a wide spectrum of career areas can also provide an opportunity to assess a student's economic, educational and career awareness, vis-a-vis the CCEM. Sampling experiences can be provided in realistic settings to approximate the "world of work". For example, work stations can be set up in which students perform work related tasks that are used in a variety of occupations. Work stations such as those developed by Singer Educational Division can be very useful in this regard. An advisor/assessor must work closely with individuals during these sampling exercises to help them relate the experience to their skills, expectations and preferences. The sampling experiences should come at a time in students' education when intervention strategies can be applied to assist the learners. For example, sampling experiences should occur as early as the first year of high school so students can explore careers and begin to assess the necessary prerequisites to pursue different careers. Students then have the time necessary to prepare for a career area and specialize, to an extent, during the remainder of their high school years. These sampling experiences can stand alone or can be infused into the student's curriculum of study (Black, 1981).

A second way of assessing/advising a student regarding career readiness is through "work study" or "work experience". The work could range from volunteer jobs done in the school to jobs for pay in industry. A student workbook is an extremely useful mechanism for evaluating student performance and facilitating the analysis and syntnesis of the experiences during the work exercise. Such workbooks have been developed for the Data Processing (Wong, Sweeney & Grange, 1979) and Business Occupations (Seidel & Inzinga, 1982) Departments at NTID. These workbooks are comprised of paper and pencil exercises that are performed by students during their ten week work experience. The workbooks cover such topics as communication, organization and management, payroll, types of work performed, and social interactions. After the work experience a debriefing session is held with students to review the workbook and assist them in processing what has been learned regarding their career preferences, interests and technical competencies. While the workbooks used at NTID are more detailed than would be used for high school students, the concept is quite applicable to rehabilitation clientele. Workbooks that focus upon coping, decision-making and processing could be developed and utilized with students during work experiences. The seminars described in the preceding section could be used to debrief the clients in a group setting. If necessary, individual and intensive counseling could be conducted with those clients having serious difficulties.

Parents can and should play an important role in the career assessment/advising of clients. As workers, parents can serve as role models for their children and can assist by having career conversations with their children in the home. Further, since parents have a vested interest in the future of their offspring, they should be integrated into the process of debriefing students regarding sampling experiences and work experiences. A simple workbook with suggested discussion issues and questions could be provided to parents. The more interaction a student has with caring adults the better (Athey, 1980).

SUMMARY

The authors have suggested an alternative approach to assessment and advising as they relate to students' career development.

They propose that counselors focus on four processes in their interactions with clients. These are:

1. managing and coping with conflicts;
2. decision making;
3. reflection;
4. studying.

Some simple techniques that have been used successfully at the National Technical Institute for the Deaf were presented.

REFERENCES

Altshuler, K.Z., Deming, W.E., Vollenweider, J.D. & Tendler, R. Impulsivity and profound early deafness: A crosscultural inquiry. American Annals of the Deaf, 1976, 121, 331-345.

Areson, A., Doe, S., Kadunc, N., Long, J., Maruggi, E., and White, K. Report of the Study Group on the Early Stages of Career Development. Unpublished manuscript, National Technical Institute for the Deaf at Rochester Insitute of Technology, February 1977.

Athey, I. Theories and models of human development: Their implications for the education of the deaf (Foundations literature review series). Unpublished manuscript, National Technical Institute for the Deaf at the Rochester Institute of Technology, 1980.

Belenky, M.F. The role of deafness and education in the moral development of hearing-impaired children and adolescents (Foundations literature review series). Unpublished manuscript, National Technical Institute for the Deaf at the Rochester Institute of Technology, 1980.

Binder, P.J. The relationship between verbal language and impulsivity in the deaf (Doctoral dissertation, Wayne State University, 1970). Dissertation Abstracts International, 1971, 32, 5614B-5615B. (University Microfilms No. 71-384).

Bishop, M., Crandall, K., Finkle, W., Peterson, B., Streim, N. & Vos, S. Early stages of career development: A concept paper. Unpublished manuscript, National Technical Institute for the Deaf at the Rochester Institute of Technology, 1979.

Black, D. (Editor) Handbook on Career Education Infusion: Strategies for Curriculum, NPCE, Rochester, N.Y.: National Technical Institute for the Deaf, 1981.

Brunchwig, L. A study of some personality aspects of deaf children. New York: Teachers College, Columbia University, 1936.

Chickering, A.W. Integrating liberal education, work, and human development. American Association for Higher Education Bulletin, 1981, 33(7), 1-17.

Colby, A. & Kohlberg, L. The relation between the development of formal operations and moral judgement. In D. Bush & S. Feldman (Eds.), Cognitive development and social development. Relationships and implications. New York: Lawrence Earlbaum Associates, 1973.

Dansereau, D. Transfer of learning from one setting to another (Foundations literature review series). Unpublished manuscript, National Technical Institute for the Deaf at the Rochester Institute of Technology, 1980.

Dansereau, D.F., McDonald, B.A., Collins, K.W., Garland, J., Holley, C.D., Dickhoff, G.M. & Evans, S.H. Evaluation of a learning strategy system. In H.F. O'Neil, Jr. and C.D. Spielberger (Eds.) Cognitive and affective learning strategies. New York: Academic Press, 1979.

DeCaro, P.A. & Emerton, G. A cognitive developmental investigation of moral reasoning in a deaf population. Paper presented at the American Educational Research Association Annual Meeting, Toronto, 1978.

DiLorenzo, L., Marron, M. & Welsh, B. Student, graduate or dropout? (Concept paper - follow-up report II). Unpublished manuscript, National Technical Institute for the Deaf at the Rochester Institute of Technology, 1981.

Dowaliby, F.J. & Pagano, J.A. Locus of control: Review and implications for instruction of the hearing-impaired (Foundations literature review series). Unpublished manuscript, National Technical Institute for the Deaf at the Rochester Institute of Technology, 1981.

Erikson, E.H. Insight and responsibility. New York: Norton, 1964.

Erikson, E.H. Identity, youth and crisis. New York: Norton, 1968.

Gagne, R.M. The conditions of learning. New York: Holt, Rinehart and Winston, 1977.

Hanner, B., Badamy, J., Berry, H., Consaul, V., Rucker, T., Stuckless, R., Titus, J. & Young, J. Toward the identification of educationally significant traits of postsecondary deaf students. Unpublished manuscript, National Technical Institute for the Deaf at the Rochester Institute of Technology, 1971.

Harris, R.I. The relationship of impulse control to parent learning status, manual communication, and academic achievement (Doctoral dissertation, New York University, 1976). Dissertation Abstracts International, 1977, 37, 4682B. (University Microfilms No. 77-5410).

Harris, R.I. Impulse control in deaf children: Research and clinical issues. In L.S. Liben (Ed.), Deaf children: Developmental perspectives. New York: Academic Press, 1980.

Hawkins, R. Primary mentoring as a teaching strategy (Foundations literature review series). Unpublished manuscript, National Technical Institute for the Deaf at the Rochester Institute of Technology, 1980.

Janis, I.L. & Mann, L. Decision making. New York: The Free Press, 1977.

Kaufman, R.A. Educational System Planning. Englewood Cliffs: Prentice Hall, 1972.

Klemp, G.O. Jr. Three factors of success. In D.W. Vernilye (Ed.) Relating work and education. San Francisco: Jossey-Bass, 1977.

Kohlberg, L. Stage and sequence: The cognitive developmental approach to socialization. In D.A. Goslin (Ed.) Handbook of socialization theory and research. Chicago: Rand McNally, 1969.

Kohlberg, L. & DeVries, R. Relations between Piaget and psychometric assessments of intelligence. Paper presented at the Conference on the National Curriculum, Urbana, Ill., 1969.

Koran, M.L., Show, R.E. & McDonald, F.J. Teacher aptitude and observational learning of a teaching skill. Journal of Educational Psychology, 1971, 62, 219-228.

Kraft, R.J. The theory of experiential learning (Foundations literature review series). National Technical Institute for the Deaf at the Rochester Institute of Technology, 1980.

Kuhn, D., Kohlberg, L., Langer, J. & Hoan, U. The development of formal operations in logical and moral judgment. Genetic Psychology Monographs, 1975.

Lang, H.G. & Stinson, M. Career education and socioeconomic status of deaf persons: Concepts, research and implications. Unpublished manuscript, National Technical Institute for the Deaf at the Rochester Institute of Technology, 1982.

Levine, E.S. Youth in a soundless world. New York: New York University Press, 1956.

Liben, L.S. Developmental perspectives on the experiential deficiencies of deaf children. In L.S. Liben (Ed.) Deaf children: Developmental perspectives. New York: Academic Press, 1978.

Long, G., Hein, R. & Coggiola, D. Networking: A semantic-based learning strategy for improving prose comprehension (Department of R & D Paper Series No. 26). Unpublished manuscript, National Technical Institute for the Deaf at the Rochester Institute of Technology, 1978.

Marantz, S. & Dowaliby, F.J. Film versus lecture methods of instruction as related to imageability. Paper presented to the American Educational Research Association, 1973a.

Marantz, S. & Dowaliby, F.J. Individual differences in learning from pictoral and verbal instruction. Unpublished report, University of Massachusetts, 1973b.

Moores, D.F., Weiss, K.L. & Goodwin, M.W. Evaluation of programs for hearing-impaired children: report of 1972-1973 (Research Project No. 57, Project No. 332189, Grant No., OE-332189-4533). Minneapolis: University of Minnesota Research, Development and Demonstration Center in Education of Handicapped Children, 1973.

Osguthorpe, R.T. Tutoring special students (Foundations literature review series). Unpublished manuscript, National Technical Institute for the Deaf at the Rochester Institute of Technology, 1980.

Parasnis, I. & Long, G.L. Relationships among spatial skills, communication skills, and field independence in deaf students. Perceptual and Motor Skills, 1979, 49, 879-887.

RIT Official Bulletin. Vol LXXX, No. 3. Rochester, New York: Rochester Institute of Technology, May, 1980.

Samovar, L.A. & Porter, R.E. Intercultural communications: A reader. Belmont, California: Wadsworth Publishing Company, 1976.

Schlesinger, H.S. The effects of deafness on childhood development: An Eriksonian perspective. In L.S. Liben (Ed.) Deaf Children: Developmental perspectives. New York: Academic Press, 1978.

Seidel, P. & Inzinga, J. Student workbook for cooperative work experience in OPP. Unpublished manuscript, NTID at RIT, 1982.

Simon, H.A. Administrative behavior: A study of decision-making processes in administrative organization. New York: Free Press, 1976.

Steve, M. Problem solving and decision making: A review of the literature (Foundations literature review series). Unpublished manuscript, National Technical Institute for the Deaf at the Rochester Institute of Technology, 1980.

Stokoe, W. Sign language structure: An outline of the visual communications systems of the American deaf. Buffalo: University of Buffalo, 1945.

Trybus, R.J. & Karchmer, M.A. School achievement scores of hearing-impaired children: National data on achievement status and growth patterns. American Annals of the Deaf, 1977, 122(2), 62-69.

Weinstein, A.R. The development of interpersonal competence. In D. Goslin (Ed.) Handbook of socialization theory and research. Chicago: Rand McNally, 1969.

Wasilewski, J.H. & Mitchell, J.D. Martin. Multicultural coping and adaption competencies (Foundations literature review series). Unpublished manuscript, National Technical Institute for the Deaf at the Rochester Institute of Technology, 1980.

Whitaker, U. Experiential learning as a teaching strategy for the career education of hearing-impaired college students (Foundations literature review series). National Technical Institute for the Deaf at the Rochester Institute of Technology, 1980.

White, Karl R. A Summary Report of an Evaluation of NTID's 1977 Summer Vestibule Program: Report #1. Unpublished manuscript, National Technical Institute for the Deaf at Rochester Institute of Technology, March, 1978.

Wong, W., Sweeney, J. & Grange, D. Student workbook for cooperative work experience in D.P. Unpublished manuscript, NTID at RIT, 1979.

APPENDIX A

Problem Statements Isolated In 1979

1. Our students have a limited knowledge base and frequently have preconceived notions re careers and majors.

    1. Work experience limited
    2. Sex-stereotypes
    3. Majoring in college, liberal arts/tech.
    4. External influence on choice
    5. Expectation/ability don't mesh
    6. Personality influences (don't like chairperson - won't major in that dept.)
    7. Misconception of majors (civil tech. bulldozer driver)
    8. Choice of majors influenced by ideas of salary
    9. Limited exposure to career options and role models

2. Our students have a limited knowledge of self, e.g.,

    a. strenghts/weaknesses re career clusters
    b. values system
    c. interests

    1. External control (peers, parents, etc.)
    2. Ability and expectations don't mesh
    3. Lack of ability to introspect
    4. Help seeking (wrong person, wrong time, wrong way)
    5. Very limited experience base/lack of feedback
    6. Unwillingness to take responsibility for decision (seeks a solution, not advice)
    7. No developed value system - or underdeveloped
    8. Black and white way of viewing the world, values, behaviors

3. Our students use unsophisticated processes for decision-making.

   1. Don't consider alternatives, risks, consequences
   2. External influences on decision (peers, parents)
   3. Accountability - we don't hold students accountable, students won't accept accountability
   4. Discrepancy between social expectations and **real** limitations of a disability
   5. Process students use (if they use one) seems to be based on "today"
   6. Limited information on which to base a decision
   7. Seek decisions from authority rather than making decision for self

4. Our students lack a repertoire of coping skills.

   1. Unwillingness to face problems (transfers, LOA, turn-off when encounter difficulties) (fear of failure??)
   2. Inability to transfer what they did in one situation to another (English skills to photo, strengths in solving problems in past to solving problems now)
   3. Need for immediate response to problem
   4. Lack of awareness of normal range of problems
   5. Locus of control (**other** people need to change; they control my destiny)
   6. Students can't separate problems (all are intertwined)
   7. Problems with time management and setting priorities

5. Our students possess an inadequate knowledge base **re** cultures and their development.

   1. Stereotyped ideas about careers and groups
   2. Rigidity and low tolerance for differences
   3. Lack of appreciation for deaf culture, where they come from
   4. Don't understand dynamics of a setting
   5. Severe culture shock upon arrival at NTID
   6. Inability to judge life experiences, to be non-judgmental about things they can't always be judgmental about
   7. Generalizability - transferability - applicability of principles, concepts

UNIVERSITY OF ARKANSAS
REHABILITATION RESEARCH AND TRAINING CENTER ON
DEAFNESS AND HEARING IMPAIRMENT
4601 W. MARKHAM
LITTLE ROCK, ARKANSAS 72205

RT-31

FACULTY

Douglas Watson	Director
Glenn B. Anderson	Director of Training
Sue E. Ouellette	Director of Research
Paula Marut	Research Associate
Nancy M. Ford	Research Assistant

STAFF

Mary O'Rourke	Secretary
Sandra Pledger	Typist
Diane Buford	Typist
Julie Poe	Research Assistant/ Interpreter

SYMPOSIUM INTERPRETERS

Shirley Herald	Julie Poe
Paula Marut	Eddie Schmeckenbecher
Zania Musteen	Myra Taff-Watson

Deaf Access

STAFF

Jesse Gatewood	Program Director
Robert Sanders	Instructor
James Gillies	Evaluator
Lisa Johnson	Interpreter
Sharon Woods	Secretary
Eloise Kemp	Secretary
George Moses	Maintenance

PARTICIPANTS

REGION I

John LeBlond
SCD
State Dept. of Education
Division of Voc. Rehabilitation
600 Asylum Avenue
Hartford, CT 06105

Patricia Ford
Vocational Evaluator
D.E.A.F.,Inc.
215 Brighton Avenue
Allston, MA 02134

REGION II

Patricia Tomlinson
SCD & Agency Training Coordinator
NJ Division of Vocational Rehabilitation
Labor & Industry Bldg., Room 1005
Trenton, NJ 08625

T. Alan Hurwitz
Associate Dean
NTID
1 Lomb Memorial Drive
Rochester, NY 14623

Kathleen M. Martin
Manager
National Center on Employment of the Deaf
National Technical Institute of the Deaf
Rochester Institute of Technology
Rochester, NY 14623

REGION III

Judy Harkins
Research Utilization & Publication
Division of Research
Gallaudet College
Washington, D.C. 20002

Richard Johnson
National Institute for Handicapped Research
400 Maryland Avenue, S.W.
Washington, D.C. 20202

William McCrone	Associate Professor Dept. of Counseling Gallaudet College Kendall Green Washington, D.C. 20002
John Schroedel	Senior Research Associate The Gallaudet Research Institute Center for Assessment and Demographic Studies 7th Street & Florida Avenue, N.E. Washington, D.C. 20002
Sharon Carter	American Deafness & Rehabilitation Association 814 Thayer Ave. Silver Spring, MD 20910
Al Pimentel	Executive Director National Association of the Deaf 814 Thayer Avenue Silver Spring, MD 20910
David L. Passmore	Associate Professor Department of Vocational Education Pennsylvania State University College Park, PA 16802

REGION IV

Deanna J. Iceman	Project Manager National Independent Living Skills Project Alabama Institute for Deaf and Blind Talladega, AL 35160
Faye Best	Director of Public Awareness for Voc. Rehab. Bureau of Rehab. Services 1st Floor, Capitol Plaza Tower Frankfort, KY 40601
Henry Warner	ORS, Dept. of Education 101 Marietta Street, N.W. Suite 903 Atlanta, GA 30323
William Woodrick	Professor Dept. of Spec. Education & Rehab. University of Tennessee Knoxville, TN 27996-3400

REGION V

Charlene L. Dwyer	Counselor Waubonsee Community College Sugar Grove, IL 60554
Steven Chough	Director Center for Deaf Treatment Services 41001 Seven Mile Road Northville, MI 48167
Robert Harris	5661 W. Bavarian Pass Fridley, MN 55432
Robert R. Lauritsen	Director Program for Deaf Students St. Paul Technical-Vocational Institute St. Paul, MN 55102

REGION VI

Betty Abrams	ASD Counseling & Evaluation Center 2400 W. Markham P.O. Box 3811 Little Rock, AR 72203
Robert L. Akridge	Training Associate University of Arkansas Rehabilitation Research and Training Center Hot Springs Rehabilitation Center Hot Springs, AR 71901
E. Russell Baxter	Commissioner Div. of Rehabilitation Services 1401 Brookwood Drive P.O. Box 3781 Little Rock, AR 72203
Elizabeth Belheimer	Division of Rehabilitation Services 1401 Brookwood Drive P.O. Box 3781 Little Rock, AR 72203
Carl Bowman	ODHI 4323 W. Markham Little Rock, AR 72205
Ann Cloyd	ASD Counseling & Evaluation Center 2400 W. Markham P.O. Box 3811 Little Rock, AR 72203

Jerry Cobb	ODHI - ILS P.O. Box 3800 Batesville, AR 72501
Steven Cumnock	ODHI 4324 W. Markham Little Rock, AR 72205
Carolyn Dokes	Little Rock School District
Robert Easter	Comprehensive Rehab Center 212 Reserve Hot Springs, AR 71901
Marilyn Ford	ODHI NBC Plaza, Suite 304 El Dorado, AR 71730
Paula Gober	ODHI - ILS 453 W. Gaines P.O. Box 450 Monticello, AR 71655
Cindy Harrison	ODHI - ILS 2920 McClellan Drive Jonesboro, AR 72401
Rebecca Hartley	ODHI 4324 W. Markham Little Rock, AR 72205
Travis Higgenbotham	Superintendent ASD 2400 W. Markham P.O. Box 3811 Little Rock, AR 72203
Sherry Hilburn	ODHI - ILS P.O. Box 3800 Batesville, AR 72501
Jo Nell Hill	Specialist/Hearing 2505 W. 18th Street Pine Bluff, AR 71603
Leslie Tutt Holland	Area Services for the Hearing Impaired Russellville, AR 72801
Wayne Holt	ODHI - ILS Counseling & Evaluation Center 2400 W. Markham P.O. Box 3811 Little Rock, AR 72203
Gloria Kemp	Deputy Commissioner ODHI 1401 Brookwood Drive P.O. Box 3781 Little Rock, AR 72203

Karin Krebs	ODHI - ILS 624 Malvern Avenue Hot Springs, AR 71901
Ken Lane	ASD 2400 W. Markham P.O. Box 3811 Little Rock, AR 72203
Cathy Lemonds	Educational Specialist Deaf/Blind Programs Arch Ford Educational Bldg. Little Rock, AR 72201
John N. Marr	Professor of Psychology Research Associate University of Arkansas Rehabilitation Research and Training Center Fayetteville, AR 72701
Rick McClarrin	Fayetteville, AR 72701
David McDonald	Forrest City, AR
Bob L. Means	Director of Training University of Arkansas Rehabilitation Research and Training Center Hot Springs Rehabilitation Center Hot Springs, AR 71901
Tim Milligan	Research & Training Center P.O. Box 1358 HSRC Hot Springs, AR 71901
Susan Murray	Superspeech 4601 W. Markham Little Rock, AR 72205
Ken Musteen	National RID ASD Counseling & Evaluation Center 2400 W. Markham P.O. Box 3811 Little Rock, AR 72203
Laura Nodurfth	ODHI 616 Garrison Avenue P.O. Box 2025 Fort Smith, AR 72902

Barbara Northup	ASD Evaluation Center 2400 W. Markham P.O. Box 3811 Little Rock, AR 72203
Susan Painton	ASD Counseling & Evaluation Center 2400 W. Markham Little Rock, AR 72203
Rick Patton	ODHI 4324 W. Markham Little Rock, AR 72205
Becky Porter	Human Services Center Conway, AR 72032
Carl Reddig	ASD Evaluation Center 2400 W. Markham P.O. Box 3811 Little Rock, AR 72203
Debbie Sehon	ODHI - ILS 616 Garrison Avenue P.O. Box 2025 Fort Smith, AR 72902
Janet Surratt	Program Specialist for the Deaf Community Mental Health Center 4313 W. Markham Little Rock, AR 72205
Leon Thornton	Research & Training Center P.O. Box 1358 HSRC Hot Springs, AR 71901
Don Thurman	Division of Rehabilitation Services 1401 Brookwood Drive P.O. Box 3781 Little Rock, AR 72203
Sharla Vaughn	ASD Evaluation Center 2400 W. Markham P.O. Box 3811 Little Rock, AR 72203
Francine Womack	ODHI - ILS 4171 Crossover Fayetteville, AR 72701

Barry Critchfield	Educational Psychologist Louisiana School for the Deaf P.O. Box 3074 Baton Rouge, LA 70821
Dave Myers	State Coordinator of Services of Deaf Louisiana Div. of Voc. Rehabilitation P.O. Box 44571 Baton Rouge, LA 70804
Maury Castro	Dept. of Education Vocational Rehabilitation 604 San Mateo Santa Fe, NM 87503
Iris Abbott	Oklahoma School for the Deaf E. 10th and Tahlequah Street Sulphur, OK 73806
Trisha Hays	Moore Public School Moore, OK
Carl Roberts	Oklahoma Commission on the Deaf & Hearing Impaired 4901 N. Lincoln Oklahoma City, OK 73125
Marilyn Sanders	Visual Services Oklahoma
Lora Walenz	Oklahoma School for the Deaf & Hearing Impaired E. 10th and Tahlequah Street Sulphur, OK 73806
C.C. Davis	Helen Keller National Center for Deaf/Blind Youth & Adults 1111 W. Mockingbird Lane, Suite 1330 Dallas, TX 75247
Jerry Doyle	U.S. Dept of Education Rehabilitation Services Administration 1200 Main Tower Bldg., Room 2040 Dallas, TX 75202
Woody Sterling	Regional Center for Deaf-Blind 2930 Turtle Creek Plaza Dallas, TX 75219
William Torretti	Job Placement Coordinator Southwest Center for the Hearing Impaired San Antonio, TX 78240

REGION VII

Ed Franklin

Director
Gallaudet College Extension Center
Johnson County Community College
12345 College at Quivira
Overland Park, KS 66210

Jan Bueker Rodgers

State Family Services Specialist
for Deaf-Blind
Family Institute of Kansas City, Inc.
Kansas City, MO 64114

REGION VIII

Carole Custer

Career Planning & Placement Specialist
Community College of Denver
3645 W. 112th Avenue
Westminster (Denver) CO 80030-2199

REGION IX

Rod Ferrell

Dept. of Rehabilitation
University of Arizona
Tucson, AZ 95721

Ed Rogers

Program Coordinator
Dept. of Rehabilitation
830 K Street
Sacramento, CA 95818

Judy Tingley

SCD
Dept. of Rehabilitation
830 K Street
Sacramento, CA 95818

REGION X

John Reiman

Regional Resource Center on Deafness
Western Oregon State College
Monmouth, OR 97361

Kathleen West-Evans

Unit Coordinator
Projects With Industry
Seattle Hearing and Speech Center
Seattle, WA 98122

University of Arkansas at Little Rock

Students

Polly Browning
Les Hobbs
Karen Keefe
Robert Phillipe
Hilda Price
Hilda Pruitt